Nutrition Expeditions

- Family & Consumer Sciences 7-12
- Standards-based
- Web-enhanced

S.D. TEAM Nutrition

south dakota DEPARTMENT OF EDUCATION
Learning. Leadership. Service.

NUTRITION EXPEDITIONS
PREPARED FOR SOUTH DAKOTA STATE UNIVERISTY, COOPERATIVE EXTENSION SERVICE,
SOUTH DAKOTA DEPARTMENT OF EDUCATION, CHILD AND ADULT NUTRITION SERVICES and
SOUTH DAKOTA DIVISION OF WORKFORCE AND CAREER PREPARATION

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Note to Teachers:

As with any "expedition", you will want to explore and consider options before you begin your journey. You are encouraged to check out the lesson plans as your first "stop". These lessons provide a variety of activities; teachers are encouraged to select those that they feel are best for their student's abilities and current level of knowledge. You may also want to include "side trips" of your own choosing to compliment this journey.

Refer to the Table of Contents for unit, lesson, and handout names.

Each lesson begins with the teacher's guide followed by all handouts, keys, and transparency masters for that lesson in the order that they appear in the teacher's guide. For each unit the handouts and activities are included; read the lesson plan first and then explore the supporting materials. Enjoy your Nutrition Expedition!!!

Nutrition Expeditions
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INFLUENCES ON NUTRITIONAL PRACTICES AND WELLNESS ACROSS THE LIFESPAN
Psychological, Cultural and Social Influences on Food Choices
Lesson Grade Levels: 7-12

Concept: Psychological, Cultural and Social Influences on Food Choices

Comprehensive Standard: 6.1 Analyze the factors that influence nutritional practices and wellness across the lifespan

Technical Standard: 6.1.1 Examine the psychological, cultural and social influences related to food choices

LESSON COMPETENCIES:

- Identify influences on the food choices (MS)
- Analyze internal and external influences on food choices (HS)
- Analyze marketing strategies that influence food choices (HS)

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students recognize the numerous influences on food choices made by individuals and families.
- Students are willing to try new foods.

Resources Needed:

- Overhead transparency of *Factors That Influence Food Choices*
- Map of world and slips of paper
- Foods from around the world for tasting panel
- Copies of all handouts/graphic organizer for each student
- Foods for tasting panel

References for teachers and students:

West, Dorothy. (2006). Nutrition, Food and Fitness. The Goodheart-Wilcox Company, Inc., Tinley Park, Ill. (http://www.g-w.com/). The book has been recently updated to include information on the new Dietary Guidelines and *MyPyramid*. Chapter 2 is titled - Factors Affecting Food Choices.

Wisconsin Department of Public Instruction (1996). Family, Food and Society: A Teacher's Guide. WI Department of Public Instruction, Milwaukee, WI. This guide is suggests an approach to curriculum that challenges students to see the larger ramifications of their daily choices on their local and global communities. Using hands-on experiences and food labs, students learn to examine family and societal goals and how choices about food can help or hinder the realization of these goals. The five modules of the guide, filled with sample handouts and lesson materials, provide a prototype of a high school family, food, and society course. Module B addresses the development of food-related attitudes and norms and their significance to individuals and families. Available at the *Department of Wisconsin* webpage (http://www.dpi.state.wi.us/pubsales/lfskll.html).

A lesson plan on this topic is available at www.healthteacher.com. This site is no longer free; it does require a subscription.

A wide variety of resources on ethnic and cultural influences on food choices including food guide pyramids from different cultures can be accessed at the *Food and Nutrition Information Center* at www.nalusda.gov/fnic/ Click on "Topics A-Z" and then click on "Ethnic and Cultural".

Background Information:

Food choices are influenced by many factors:

- age
- gender
- friends
- family
- role models
- cultural background
- where we live
- advertising
- nutrition knowledge
- others

People bond and foster relationships around the dinner table and at celebrations with special meals and foods, such as birthday cake or a graduation reception. Some people use food to cope with stress by overeating or depriving themselves of food. Food may also be used as a reward for accomplishing a specific goal or as a way of expressing creativity. Food is also a big part of social events. Consequently, what people eat can reveal much about who they are socially, politically and culturally.

Factors influencing food choices include:

- **Taste, texture and appearance**
- **Economics –** the cost of food affects what we eat and impacts the global economy.
- **Our early experiences with food –**food preferences begin early in life and change as we are exposed to new people and places. As children, our choices were in the hands of our parents. However, as we get older, our experiences with new people and places increase, thereby offering a broader opportunity for experiencing new foods and expanding our food preferences and choices.
- **Habits** – Most of us eat from a particular core group of foods. About 100 items account for 75% of the foods most people eat. Having a narrow range of food choices provides us with security. For example, going to a particular fast-food restaurant provides common expectations and experiences. In addition, many people also acquire the cooking habits and meal planning choices of their mothers or grandmothers. For example, serving a Thanksgiving turkey with "stuffing" in the Midwest versus "chestnut dressing" in the East.
- **Culture** – Religious values can affect food choices. For example, Hindus do not eat beef and some Jewish people do not eat pork. The ethnic heritage of

families can also affect eating behaviors. For example, families of Norwegian descent may serve lutefisk and lefse for a holiday celebration while families of German descent might serve rouladen and strudel. Culture can also dictate the times to eat and what to eat at certain meals.

- **Geographic location** -The area of the world that we live in also influences food choices. In Sweden, people would not eat an ear of corn because that is considered food for hogs. In the United States, we don't normally eat insects, but in many parts of the world, they are regarded as preferred foods. Geographic location also contributes to food availability and cost of food.
- **Advertising/Marketing** – Food producers spend billions of dollars each year on advertising and packaging to capture the attention and interest of the consumer. The power of persuasion is strong, and so food producers and restaurants try to make their products as appealing as possible to consumers, even if it means making false claims.
- **Social factors** – Social changes have a big effect on the food industry. Our fast-paced society demands drive-through restaurants, salads in a bag, and microwaveable entrees. Gas stations now have restaurants attached to them so that people can do one-stop shopping while on the road. Social relationships with our peers also influence our food choices. When friends gather, food choices may be made based on our desire to feel accepted as part of the group.
- **Health/Weight Concerns –** Some people have health concerns that influence food choices. For example, a young person may have concerns about their weight – overweight or underweight.
- **Emotions -** Our emotions also play a role in food choices. We may eat some foods when we are happy and others when we are sad.

Learning Activities:

Middle School Level

- Ask students to make a list of their ten favorite foods. Ask the following questions and list student responses on the board:
  - Why did you choose these foods?
  - Are there some foods that several of you have on your list? What are they?
  - What types of foods would your parents have on their lists?
  - What types of foods does your family serve at holidays (i.e. Thanksgiving, Christmas)? Why are these foods served?
- NEW Ask students to think about the foods that are a part of their family traditions. Discuss the reasons that might make a food or dish special – this may include an association with their cultural heritage, their preparation differs from the way other families make it, a member of the family developed the recipe such as Grandma's potato salad, the context in which the food is served such as a holiday, religious ceremony or camping trip, a story or event associated with the dish such as the chicken dinner dad cooked for mom the night he proposed or just because everyone in the family loves it. (Adapted

from the teacher's guide to the Key Ingredients *Smithsonian* exhibit available at (http://www.keyingredients.org/).

- Ask students to brainstorm responses to the question: "What influences the food choices that we make?" Use the transparency master *Factors That Influence Food Choices* and the graphic organizer for students and discuss each of these factors with students. Give examples of each influence and ask students to give examples.
- Ask students to complete the t-chart, "*Social Times and the Foods We Choose*". Discuss other social events that the students associate with particular foods and why they make these associations. Discuss:
  - Would these food choices be the same in other regions of the U.S.?
  - How might these food choices be different in other regions?
- Ask students to brainstorm all of the ethnic foods that they have tried or have heard about. Students write these foods on slips of paper and identify countries of origin by placing the foods on a world map. Teacher may add to the list by identifying ethnic foods he/she has tried. Discuss influence of other cultures on American food habits/choices
- Hold a "tasting panel" with foods from around the world that students may not have tried (mango, papaya, pomegrante, etc.). Identify country of origin. A map could be used again for this activity with students identifying the countries from around the world that grow each food tried. Discuss how we develop a preference for foods - different tastes, textures, appearance, how it is prepared, etc.
- Have students conduct a survey of all students in their class or school. After compiling the results of their survey, develop a list of the "Top Ten Favorite Foods". Discuss with students:
  - Why are these foods popular?
  - Would your parents choose the same foods? Why or why not?
  - What influences your food choices?

- NEW Share with students an image of the Corn Palace. Ask them to answer the question: "If you could build a monument honoring a food, what food would it be made out of and how would it be shaped?" Consider asking them to draw what it would look like.

High School Level

- Ask students to brainstorm their responses to the question: "Why do we choose to eat the foods that we do?" List student responses on the board.
- Use the transparency master *Factors That Influence Food Choices* and the graphic organizer for students and discuss each of these factors with students. Give examples of each influence and ask students to give examples.
- Following this illustrated lecture on the influences on our food choices, ask students to complete "*Influences on Food Choices*". Discuss responses. Ask students to identify other situations or choices they have made or others have made that represent the influences on the handout.

- Hold a "tasting panel" with foods from around the world that students may not have tried (mango, papaya, pomegranate, etc.). Identify country of origin. A map could be used again for this activity with students identifying the countries from around the world that grow each food tried. Discuss how we develop a preference for foods - different tastes, textures, appearance, how it is prepared, etc.
- "Wrap it Up" – ask students to identify what they have learned from these activities and how it might influence their future food choices.

Academic Connections - NEW

- ✓ **Social Sciences** - Ask students to research the food customs/food availability of one of the countries that is a source of the foods included on the taste panel. A website that discusses the origins of the world's food can be found at http://museum.agropolis.fr/english/pages/expos/aliments/index.htm
- ✓ **Social Sciences** - Visit the *Food Museum* online to explore the history of foods around the world. This site provides a "virtual tour of the world's foods, based on artifacts from the museum's collections. The site answers food questions, relates food news, reviews books, and describes the museum's programs." Of interest is the exhibits section, which includes food lists and foods that originated in the Western Hemisphere. Click on food history. http://www.foodmuseum.com/
- ✓ **Social Sciences –** check out the online educational companion to the Smithsonian Institution's traveling exhibition *Key Ingredients: America by Food*. At this website (http://www.keyingredients.org/), students can explore the two ingredients that are key to American cuisine – regional traditions and international influences. A teacher's guide with lesson plan ideas is also available. The timeline offers information related to 500 years of American food including food used during war times, modern trends, etc. The *Great American Cookbook* offers recipes and family stories shared by visitors the sites.
- ✓ **Language Arts/Literature/Reading -** Read with the students or ask them to read *Salsa Stories* by Lulu Delacre. This is a children's book that explains Hispanic culture through short stories and also includes recipes for dishes that are mentioned in the stories. Many young people think of Hispanic culture as coming from a single country. For example, in Texas children may feel that most people who speak Spanish are from Mexico, while in New York young people may think most Spanish speaking people come from Puerto Rico. *Salsa Stories* shows the broad panorama of Hispanic culture from many different countries, each country with different customs, climates, and cuisines.

  After reading the book, have student make some of the recipes included in the book and/or a variety of salsas such as pineapple salsa, mango salsa, etc. AND/OR Ask students to write their own story about a food that is special to them and create their own collection of stories and recipes. (See the reference to the *Great American Cookbook* at www.keyingredients.org for another example.) This could be done as an extended activity with elementary students as well.
- ✓ **Mathematics/Statistics –** Use the results of the surveys conducted (see last bullet in learning activities) and create bar graphs showing the results.

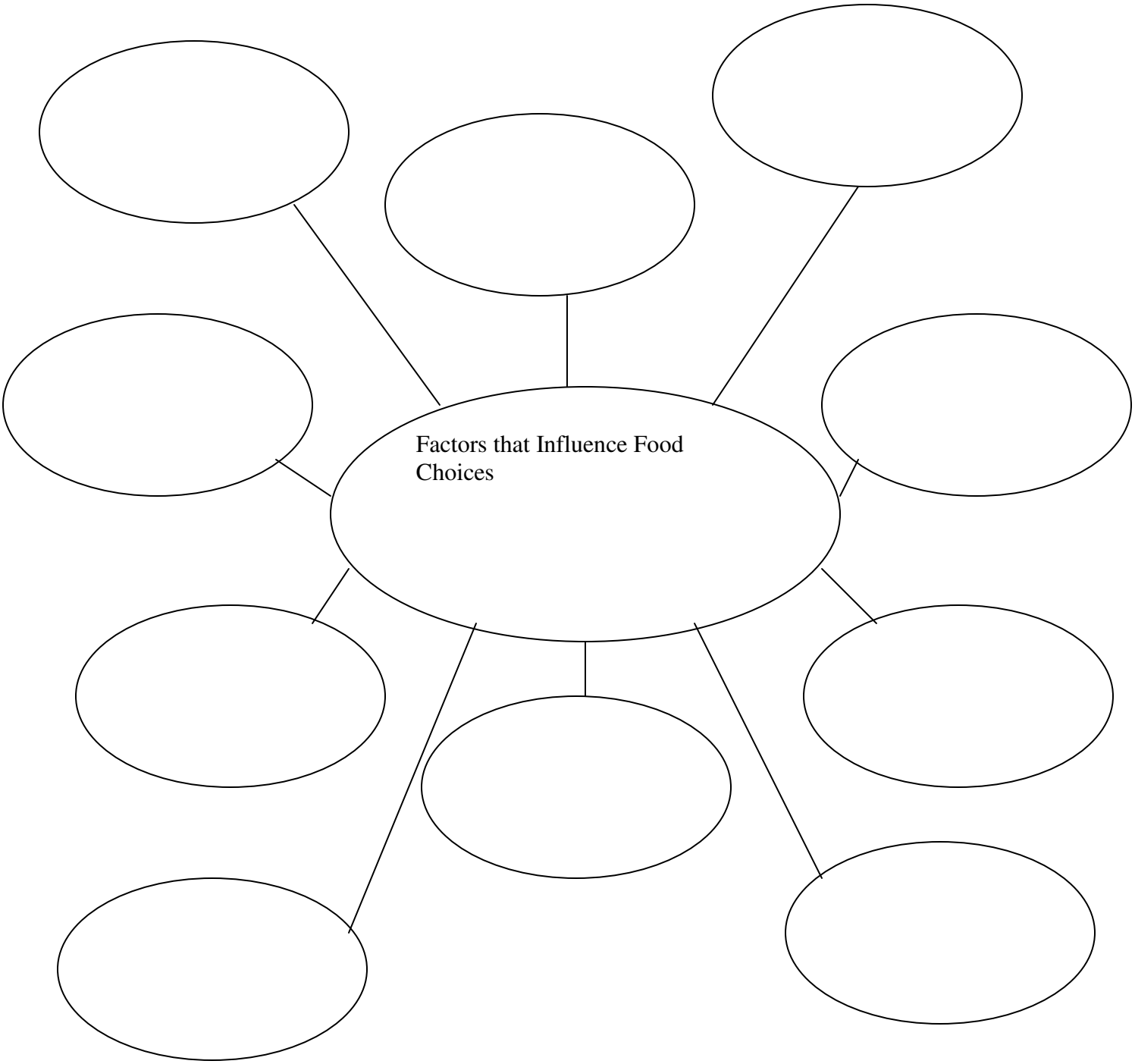
- ✓ **Social Sciences –** Research the "Buy Nothing" movement to reduce consumerism and consumption. Relate to dining/eating out. Encourage students to work with family members to reduce meals eaten away from home.

Factors That Influence Food Choices

- **Taste, texture and appearance**
- **Economics**
- **Our early experiences with food**
- **Habits**
- **Culture**
- **Geographic location**
- **Advertising/Marketing**
- **Social factors**
- **Health/Weight Concerns**
- **Emotions**

Graphic Organizer

Identify the influences on food choices by writing each influence in the ovals as they are discussed. Give a personal example of that influence in each oval.



Influences on Food Choices

Name _____

Many factors influence our food choices. As you read each of the following situations, identify the influence on the food decision from the list below:

a. Climate/Geography
b. Emotions
c. Ethnic Influence
d. Friends
e. Health/Weight Concerns
f. Media/Advertising
g. Politics
h. Religious Values
i. Social Changes
j. Technology

_____1. After losing the swim meet, Heather went home and "chowed down" a large bowl of ice cream.

_____ 2. Jacob's family will eat only kosher foods.

_____ 3. Nikki's mom does not get home from work until 6:30 p.m. Nikki has prepared a frozen entrée and a tossed salad for the two of them.

_____ 4. Sweet corn, cantaloupe and watermelon are plentiful in South Dakota in the late summer.

_____ 5. Lutefisk and lefse are served at the Olson family home for Sunday dinner.

_____ 6. The Jones family chooses to eat only locally grown products to support area producers.

_____ 7. Shelly selects a low sodium item from the menu.

_____ 8. Rob convinces his mom to purchase the cereal with Tiger Woods on the package.

_____ 9. Renae serves pizza, chips and pop at her slumber party.

_____10. At home alone, John prepares a microwave entrée for supper.

Social Times and the Foods We Choose

Social Event	Food(s) Associated With It
Attending a football game	
A wedding reception	
A child's birthday party	
Going out to eat with friends	
Thanksgiving dinner	
Going to a movie	
School awards banquet	
Family reunion or gathering	
4th of July picnic	
Graduation reception	
Going to a carnival or State Fair	
Going to the circus	
Going to a baseball game	
Camping trip	

INFLUENCES ON NUTRITIONAL PRACTICES AND WELLNESS ACROSS THE LIFESPAN
Psychological, Cultural and Social Influences on Food Choices
Grade Levels: 7-12

Concept: Advertising

Comprehensive Standard: 6.1 Analyze the factors that influence nutritional practices and wellness across the lifespan

Technical Standard: 6.1.1 Examine the psychological, cultural and social influences related to food choices

LESSON COMPETENCIES:

- Identify advertising strategies used to influence food choices (MS)
- Analyze marketing strategies that influence food choices (HS)

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students identify the strategies used by advertisers to influence consumers.
- Students make buying decisions based on sound nutritional advice.

Resources Needed:

- Magazines and scissors
- Food ads from magazines or taped ads from television

References for teachers and students:

Team Nutrition, a program developed by the USDA to promote healthy eating and physical activity has several resources appropriate for middle school students. These include a Student Activity Guide and Teacher's Guide with several activities called *yourSELF*. One activity is an enrichment activity in the Teacher's Guide called "Advertise for Your Health" which asks students to create ads with the overall goal of encouraging kids their age to make smart eating decisions, stay physically active or both. Several can be downloaded for free at their website or ordered at the site. The address is http://teamnutrition.usda.gov/Educators/yourself.html Click on teacher's guide.

The *Media Awareness Network of Canada* has several lesson plans and handouts on advertising for young children and teens as well as information for parents. The site is found at http://www.media-awareness.ca/english/index.cfm and has a variety of lessons on advertising. The link below relates specifically to food advertising; there are also lessons on advertising obesity, alcohol and advertising, body image, etc.
http://www.media-awareness.ca/english/resources/educational/lessons/elementary/advertising_marketing/food_advertising.cfm

NEW - *California Project LEAN* (Leaders Encouraging Activity and Nutrition) (CPL) is a joint program of the *California Department of Health Services* and the *Public Health Institute* focusing on youth empowerment, policy and environmental change strategies, and community-based solutions. Their mission is to increase healthy eating and physical activity to reduce the prevalence of obesity and chronic diseases such as heart disease, cancer, stroke, osteoporosis, and diabetes. The site has several lesson plans including a lesson plan called "Advertising's Hidden Messages"; it is available at
http://www.californiaprojectlean.org/resourcelibrary/genResourceLibraryDetail.asp?CG

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NEW The *National Institute of Child Health and Human Development* has developed a workshop curriculum for youth ages 11-13 called, *Media –Smart Youth: Eat, Think and Be Active.* The curriculum is an interactive program that helps young people understand the complex media world around them and how it can influence their health--especially in regard to nutrition and physical activity. It was planned for after school programs but is appropriate for in school programs as well. The curriculum, a video and DVD related to the program are available free of charge and can be ordered at http://www.nichd.nih.gov/publications/pubs.cfm?from=wecan. Additional nutrition education materials are also available.

Several lesson plans on the topic of advertising including one called "Food Advertising Tricks" can be found at http://pbskids.org/dontbuyit/teachersguide.html#advertisement%20.

Background Information:

Advertisers spend billions of dollars each year to influence consumer spending. A wide variety of advertising and strategies are used to influence both children and teens in purchasing food.

A technique is a method ads use to persuade customers to buy a product. Most techniques appeal to the consumer's need for a sense of belonging and acceptance. Some of the more common advertising techniques used include the following:

- **Bandwagon** – ads give the impression that everyone is using this product and you don't want to be left out
- **Comparison** – compares one product to another of the same type. A brand might also compare its "old" self to its' "new, improved formula"
- **Generalities or Glittering Generalities** – uses broad, general terms that sound appealing to the audience but really say nothing informative about the product or could apply to any brand of the same product. Example: "The American Way"
- **Heart Strings** – ads that draw you into a story and make you feel good. Example:
- **Name Calling or Mudslinging** – "slamming" the competition; claiming their product is better than another product
- **Plain Folks** – appeal to the common, ordinary people
- **Rewards or Special Offers** – consumer will get something if they purchase the product, i.e. a coupon for use on next purchase, a toy, etc.
- **Snob Appeal** – appeal to people who want to become part of an "elite" or "exclusive" group
- **Special Ingredient** – adding something to a product to set it apart from the competition
- **Testimonial** – used an athlete or celebrity to endorse a product

Advertisers also use "weasel words" – words that are misleading or deceptive. This might include words or phrases such as: "all natural", "new, better tasting" (better tasting than what?), "nutritious", "good for you", "fresh", etc.

Media influences include

- media models promoting popular trends including fashion, style, activities,
- models appear flawless and reflect images that are unattainable
- enticing consumers with "fat free" foods leading them to believe that they are able to eat them in unlimited amounts instead of in moderation, also distorts the need for fat in the diet
- advertising fads in exercising and diet pills & machines promising "quick fixes" to life problems instead of lifestyle changes of exercising and changing eating habits
- advertising diet centers and techniques contributing further to image or idea of imperfection and being uncomfortable with self
- adverting for fast foods or other foods during times to appeal to specific audiences such as children and teens to influence family food purchases

Learning Activities:

Middle School Level

- Ask students to brainstorm the reasons why advertisers for food products would want to target children or teens. Answers might include:
  - Children are often with parents when they are shopping for groceries
  - Children watch a lot of television and pressure parents to buy what they see advertised
  - Teens often do grocery shopping for the themselves and for their families
  - Teens have a lot of disposable income (from allowances and/or part time jobs)
  - The advertisers want to build brand loyalty at an early age
- Ask students to:

  Brainstorm where they see or hear ads for food
  - in bathrooms
  - on the Internet
  - billboards
  - television
  - radio
  - magazines
  - on shopping carts
  - on people's clothes
  - on race cars
  - on buses in larger cities
  - at movies
  - other

Brainstorm where they see food ads in school
- on pop machines
- scoreboards
- programs for school events
- clothes
- book covers
- other

Brainstorm places where there are no ads
- church
- other

- Discuss the advertising strategies used to persuade consumers to buy food products and other products. Show example(s) of each type of advertising strategy as you describe it for students. Ask students for examples they have seen. (See background information.)
- Ask students to identify the advertising strategies by finding magazine ads for foods that are examples of each of the strategies discussed. Have students compile their results by completing the handout *"Advertising Techniques: Does It All "Ad" Up?"* OR Ask the students to find magazine ads for food that are examples of each of the strategies and place them on a bulletin board or white board under the appropriate category. (Note to teacher: you will need to prepare placards with the name for each advertising technique and post before students begin.)
- Ask students to complete the "Advertise for Your Health!" Available in the *yourSELF* resources at the *Team Nutrition* website (see reference list).

High School Level

- Review the techniques advertisers use to sell their products using the information provided in the background information section of this lesson. Use the transparency master *Advertising Techniques*
- Ask students to find examples of food ads using each of the strategies discussed in magazines targeted at a variety of age groups: children, teens, parents, adults, elderly, etc.
- Assign a food that is one that would be difficult to "sell" to teens such as broccoli, liver, cauliflower, etc. Working in teams, ask students to develop an ad campaign designed to encourage teens to eat the assigned food or include as a part of their food choices. Students can use one or more of the techniques discussed in class or develop a technique of their own. Students present their ads to the class OR Ask students to complete the "Advertise for Your Health!" Available in the *yourSELF* resources at the *Team Nutrition* website (see reference list).

Extended Learning Activities:

- **Ad Campaign –** Using the ads developed to "sell" foods in the previous activity, place the ads in the cafeteria.

- NEW - **Public Awareness Campaign -** Have students or FCCLA members conduct a public awareness campaign about advertising and strategies used to influence teens as consumers. This might include press releases, PSAs, bulletin boards, a "Buy Nothing" Day, etc.

Academic Enhancements NEW

- ✓ **Speech/Communications -** Debate on advertising of food products to children **–** ask students to conduct a debate on the benefits and drawbacks to food advertising aimed at children and /or teens. Some websites that could be used as references are:
  - Info on this topic can be found at http://depts.washington.edu/thmedia/
  - Another website with information on this topic that includes articles written about food advertising can be found at; http://medialit.med.sc.edu/foodprintads.htm
  - Article, *It'd Be Easier if SpongeBob Were Hawking Broccoli,* at http://www.nytimes.com/2005/01/12/dining/12WELL.html?ex=1152158400&en=634de46b974c6ea1&ei=5070
  - Links to research on the topic can be found at: http://medialit.med.sc.edu/food_ads_research.htm
  - A history of food advertising to children can be found at http://www.foodmuseum.com/issueadvertising.html
  - An additional resource that can be used is: http://www.iom.edu/CMS/3788/21939/31330/31337.aspx

- ✓ **Speech/Social Sciences -** Public Awareness Campaign - Have students or FCCLA members conduct a public awareness campaign about advertising and strategies used to influence teens as consumers. This might include press releases, PSAs, bulletin boards, a "Buy Nothing" Day, etc.

Advertising Techniques

Bandwagon

Comparison

Generalities or Glittering Generalities

Heart Strings

Name Calling or Mudslinging

Plain Folks

Rewards or Special Offers

Snob Appeal

Special Ingredient

Testimonial

Advertising Techniques: Does It All "Ad" Up?

Name(s) _____

Directions: Using the magazines, find an ad for food that uses the 10 advertising techniques discussed in class to sell the product. Put the name of the food product being advertised in the first column and attach a copy of the ads to this handout. In the third column, list any "weasel words" used by the advertiser.

Ad	**Advertising Strategy Used**	**Examples of "Weasel Words"**
1.	Bandwagon	
2.	Comparisons	
3.	Generalities	
4.	Heart Strings	
5.	Name Calling or Mudslinging	
6.	Plain Folks	
7.	Rewards or Special Offers	
8.	Snob Appeal	
9.	Special Ingredient	
10.	Testimonial	

INFLUENCES ON NUTRITIONAL PRACTICES AND WELLNESS ACROSS THE LIFESPAN
Psychological, Cultural and Social Influences on Food Choices
Lesson Grade Levels: 7-12

Concept: Food Security and Hunger

Comprehensive Standard: 6.1 Analyze the factors that influence nutritional practices a and wellness across the lifespan

Technical Standard(s):

6.1.2 Explore the societal, governmental, socio-economic, and technological influences related to food choices and practices

6.1.3 Examine the impact of food choices on the global community

LESSON COMPETENCIES:

- Define food security, food insecurity, hunger and other related terms (MS,HS)
- Identify possible causes of food insecurity and hunger (MS, HS)
- Examine issues related to food insecurity and hunger (HS)
- Explore meal planning for families below the poverty level (HS)
- Discuss possible solutions to the problem of domestic and world hunger (MS, HS)

Anticipated Behavioral Outcomes:

- **S**tudents develop an awareness of domestic and global issues related to hunger and poverty.
- Students research some of the many factors that contribute to food insecurity and hunger in the United States and around the world.
- Students take action in their local communities to address these concerns.

Resources Needed:

- Calculators
- Food ads from local grocery stores
- Copies of handouts for all students
- Copies of the "Food Stamp Eligibility" limits available at http://www.frac.org/html/federal_food_programs/programs/fsp.html

References for teachers and students NEW websites added:

Federal poverty guidelines are updated each year and can be found at http://aspe.hhs.gov/search/poverty/index.shtml#latest.

For information on "Food Stamp Eligibility" limits and other Federal Food Assistance programs as well as a reproducible fact sheet on "Hunger in America", see the *Food Research Action Council* site http://www.frac.org.

A pamphlet outlining the food stamp program *Facts About the Food Stamp Program* and how to order hard copies of the pamphlet can be found at http://www.fns.usda.gov/fsp.

NEW **-** *The World Food Programme* (WFP) (www.wfp.org/english) is the world's largest international food aid organization combating hunger in underdeveloped nations with severe food shortages. The frontline stretches from sub-Saharan Africa and the Middle East to Latin America and Asia and the Pacific. WFP is the food aid arm of the United Nations system. This site is an excellent source of information on world hunger. There is an interactive map of world hunger and a downloadable game (http://www.food-force.com/index.php/reality/wfp_site/). Food Force is an educational video game telling the story of a hunger crisis on the fictitious island of Sheylan. It is comprised of 6 mini-games or "missions", the game takes young players from an initial crisis assessment through to delivery and distribution of food aid, with each sequential mission addressing a particular aspect of this challenging process.

America's Second Harvest (http://www.secondharvest.org)/. This Nation's Food Bank Network is the nation's largest charitable hunger-relief organization.

Facing the Future (http://facingthefuture.org/) develops young people's capacity and commitment to create thriving, sustainable, and peaceful local and global communities. Sample lessons are available for download and an entire curriculum can be ordered for a minimal charge.

Feeding Minds, Fighting Hunger (http://www.feedingminds.org). This project was initiated by a group of international and non-governmental organizations that have joined forces to help eradicate hunger and malnutrition through education. A free curriculum of the same name is available for primary, intermediate and secondary students.

Food For Everyone (http://www.agedhq.org/ffe/index.html). This site offers a free curriculum on hunger focused on the agriculture industry.

Food for the Hungry (http://www.fh.org/) is working in over 47 countries providing relief, and implementing development programs to transform communities physically and spiritually

Founded in 1946, *Freedom from Hunger* is a nonprofit, international development organization that brings innovative and sustainable self-help solutions to the fight against chronic hunger and poverty (http://www.freefromhunger.org/).

Across the globe, *Heifer International (*http://www.heifer.org/) donors, volunteers, staff and project partners strive daily to build communities, distribute resources fairly, improve access to education and preserve our environment.

http://nutrition.tufts.edu/academic/hungerweb/, *Hunger Web,* is for researchers, educators, policy influencers, operations personnel, other professionals and students using the Internet to help find solutions to hunger at the global, national, community and household level—or for anyone who is interested in learning more about the subject.

The *Hunger Project* (http://www.thp.org/) is a strategic organization and global movement committed to the sustainable end of chronic hunger--the silent killer that takes the lives of 20,000 of our fellow human beings every day.

Know Hunger (http://www.knowhunger.org). This site has a free curriculum on hunger in American and around the world.

The *National Student Campaign Against Hunger and Homelessness* (http://www.studentsagainsthunger.org/) is committed to ending hunger and homelessness in America by educating, engaging, and training students to directly meet

individual's immediate needs while advocating for long-term systemic solutions.

http://www.feedingchildrenbetter.org/index.jsp Corporate responsibility has always been a *ConAgra Foods* priority. Through *ConAgra Foods Feeding Children Better Foundation* program, the company has focused its long history of giving and channeled it to make a deep and lasting impact on an issue that is important to its consumers, employees, customers and communities--child hunger.

http://www.unicef.org/ The home page for *UNICEF*.

http://hungerrelieforganizations.atspace.com/ This web site provides a rich source of links to the most highly respected and frequently used hunger relief organizations. They also provide world hunger statistics which characterize the extent of the problem.

Background Information:

Updated The world's population is currently around 6 billion people and is expected to climb to 8 billion people by 2025 (http://www.census.gov/ipc/www/idb/). Consider the following information from the United Nations briefing report on Poverty (2001). For the entire report, visit the website http://www0.un.org/cyberschoolbus/briefing/poverty/pvoverview.htm.

Facts on World Hunger:

- More than 2.8 billion people, close to half the world's population, live on less than the equivalent of $2/day.
- More than ½ billion people or about 20% of the world's population, live on less than the equivalent of $1/day.
- Nearly 1 billion people are illiterate
- More than 1 billion people do not have access to safe water
- The top fifth (20%) of the world's population has access to 86% of the world's wealth. The bottom fifth, in the poorest countries, has about one percent.

Facts on Hunger in America:

Updated A 2005 study by *Second Harvest* entitled *Hunger in America 2005* (http://www.secondharvest.org) found the following:

- In 2005, about 37 million people (12.6% of the population) in the U.S. were in poverty; 7.7 million families were in poverty; 12.9 million (17.8%) children under the age of 18 were in poverty; 3.6 million (10.1%) of seniors 65 and older were in poverty.
- *America's Second Harvest Network* provided emergency food assistance to an estimated 25 million low-income people.
- Nearly half (42.6%) of all emergency food recipients lived in rural or suburban areas of the country NOT cities.

NOTE to TEACHER: Another excellent fact sheet called *Hunger Facts* can be found at the *Kids Can Make a Difference* website (http://www.kidscanmakeadifference.org/hunfa.htm). A teacher's guide, *Finding Solutions to Hunger: Kids Can Make a Difference,* and 25 lessons on hunger and poverty curriculum can also be ordered at this site.

Food Insecurity - Most American families are "food secure" – they have assured access, at all times, to enough food for an active, healthy lifestyle. But many families in the United States (about 11% in 2005 according to the *Hunger In America* study completed by Second Harvest) and around the world are "food insecure" – they are uncertain of having or unable to acquire, adequate food sufficient to meet this basic need at all times due to inadequate household resources for food. This might be due to low wages, unstable employment or unemployment, or drought and famine.

WORLD FOOD DAY – *World Food Day* is celebrated every year on October 16 as an effort of the *Food and Agriculture Organization* (FAO) of the *United Nations* to raise public awareness of the world's hungry and malnourished and to encourage people to take action against hunger. This unit could be introduced at that time and/or school activities could be planned that focus on domestic and global issues related to food insecurity and hunger.

Learning Activities:

Middle School Level

- Review terms related to hunger and food insecurity. Use the transparency master, *Terms to Know*. Discuss the following questions:
  Hunger –
  - How many of you have ever been hungry?
  - How did it feel to be hungry?
  - How long was it before you were able to get some food to satisfy your hunger?
  - How would it feel to eat one meal a day – a bowl of rice and some water?
  - How many days could you survive?
  - How would this impact your work at school, your activities, and your family?

  Food Security/ Food Insecurity
  - Do you think all families in the United States are food secure?
  - Do you think all families in South Dakota are food secure?
  - Do you think all families in our community are food secure at all times?
  - How would you know if a family was struggling with having enough food? (Show pictures of children and adults and ask if you could recognize those who are not getting enough food)
  - What do families do if they do not have enough food?
    * go to a food pantry
    * go to a soup kitchen
    * go hungry or adults eat less so that children can have more to eat
  - What resources does South Dakota have to help these families?
    * Food Stamps program
    * food pantries
    * *Women, Infant and Children* program

* *The Banquet* (Sioux Falls) or other food kitchens
* reduced school lunches and/or breakfast programs

- What do you think are socially unacceptable forms of getting food in our community?
  * begging
  * going through garbage
  * going to a food pantry?
  * accepting charity?
  * going to a food/soup kitchen
  * stealing
  * accepting food stamps?
  * other
- Why might some people not seek help if they do not have enough food for their families?
  * pride
  * not aware of help
  * other

Malnutrition

- What are the signs of malnutrition?
- Are only low income families malnourished?
- How could someone be getting enough food and still be malnourished?

- Using the transparency master, review the *Health Consequences of Hunger*
- Complete the activity *Thanksgiving Shopping Cart.* Ask students to calculate the cost of the average Thanksgiving dinner in the United States. Provide food ads from the local newspaper for students. Read the article *"Less Than $1Means a Family of 6 Can Eat"* available from The *Washington Post* at http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentId=A30110-2002Feb18 Calculate how many days income for families living in third world countries are included in the cost of this one meal in the United States. Plan a Thanksgiving dinner for a low-income family.
- Complete the activity *Relying on Rice*. Discuss what countries rely on rice as the primary staple food.

  NOTE TO TEACHER: To increase the effectiveness of this activity, prepare a bowl of brown rice to show students what a one cup serving of brown rice would look like.
- Use the FCCLA Planning Process to plan a project related to hunger and food insecurity. See suggestions listed in the Extended Activities section of this unit.

High School Level

- Prepare the *World Continents Game* activity. Hand out tickets as students enter the room. Follow directions as outlined on the activity sheet.
- Students complete the pre-test/ *Understanding Poverty*. Discuss responses and provide students with correct answers. An additional quiz on Global Issues

related to poverty (click on global issues trivia) can be found at http://www.facingthefuturedata.org/download.htm

- Review terms related to hunger and food insecurity. Use the transparency master, *Terms to Know* and *Health Consequences of Hunger*. Ask similar questions to those for middle school age group.
- Complete the *Meal Planning on a Limited Income* activity. Using the federal poverty guidelines available (see first item in reference/resource list) at and *MyPyramid* for members of a case family, plan one week's menus for individuals and families that are nutritionally adequate for family members and are within budgetary limits.
- **NEW** Research the poorest counties in the United States: How many are in South Dakota? What factors contribute to poverty in our state?

Extended Activities:

- **Feast or Famine?** The directions for this activity are included. This activity could be completed by members of the class or by FCCLA members. It is very effective when completed close to the Thanksgiving holiday. It could be included as part of National Family Week/Month activities.
- **Food Drive** – FCCLA chapter hold a food drive to collect food items for the local food pantry or some other organization collecting food for those in need. Cans of food can be used for a reduction in admission price for a sporting event or other school event.
- **Community Sharing: Gleaning** – This activity is a community wide event to glean fruits and/or vegetables left in fields, gardens and orchards after harvest.

Terms to Know

Hunger

Food Security

Food Insecurity

Malnutrition

Starvation

Terms to Know

Hunger – the uneasy or painful sensation caused by a lack of food. The recurrent and involuntary lack of access to food. (Life Sciences Research Office)

Food Security – Access by all people at all times to enough food for an active, healthy lifestyle. Food security includes at a minimum: (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (Life Sciences Research Office)

Food Insecurity – Limited or uncertain availability of nutritionally adequate and safe or limited or uncertain ability to acquire acceptable foods in socially acceptable ways (Life Sciences Research Office)

Malnutrition – a general term that indicates a lack of some or all nutritional elements necessary for health (Medline Plus Medical Encyclopedia)

Starvation – the most severe type of nutritional inadequacy resulting from a lack of food needed

Health Consequences of Hunger

- **Hungry children suffer from more health problems**
  - **unwanted weight loss**
  - **fatigue**
  - **headaches**
  - **irritability**
  - **inability to concentrate**
  - **frequent colds**

- **Hungry children are more likely to be ill and absent from school**

- **Stunting (low height for age)**

- **Iron-deficiency anemia in children can lead to developmental and behavioral problems**

- **Pregnant women who are malnourished are more likely to have low birth weight babies**

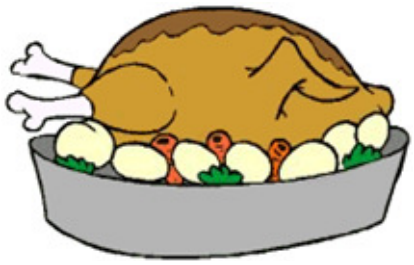
Thanksgiving Shopping Cart

Name(s) _____

Directions: Most American families prepare a bountiful Thanksgiving dinner. Calculate the amount spent on an average Thanksgiving dinner (for 10 people) in your community by finding the prices for each of the items in the "shopping cart" list.

Shopping Cart Item	Cost
16 pound turkey	
14-oz. package of cubed stuffing	
1 gallon 2% milk	
3 lbs. sweet potatoes	
12-oz. package of brown-and-serve rolls	
8-oz. carton of whipping cream	
1 bunch celery	
1 lb. carrots	
30-oz. can pumpkin pie filling	
12-oz. package of fresh cranberries	
Package of 2 nine-inch pie shells	
16-oz. package of frozen green peas	
Combined group of miscellaneous items (including coffee and other ingredients to prepare the meal)	$ 3.50
TOTAL COST	

Since 1.3 billion people live on less than $1 per day, how many days income would be covered by this meal alone?



What can you do to help?

Relying on Rice

Name(s)_____

Directions: Rice is the staple for much of the world's population. Does rice provide all of the nutrients we need? Using the nutrient charts provided by your teacher, complete the following chart indicating which nutrients are found in brown rice. When you have completed the chart, answer the questions found below.

Dietary Analysis of Rice
(list for a 1 cup serving)

Nutrient	Recommended Amount	% of Recommended Daily Value that this amount provides
Calories		
Protein (g)		
Fat (g)		
Fiber (g)		
Carbohydrates (g)		
Calcium (mg)		
Iron (mg)		
Niacin (mg)		
Thiamin (mg)		
Riboflavin (mg)		
Vitamin A (IU)		
Vitamin C (mg)		
Vitamin D (mg)		
Cholesterol (mg)		

If a child's diet consisted of a bowl of rice along with a cup of water twice a day,

1. What nutrients would the child be lacking completely?

2. What nutrients does the child get but not at 100% of the recommended amount?

World Continents Game*

Data updated with most recent available from United Nations, 2000

Format: This activity works best with a minimum of 20 people.

Objectives:

- recognize how people and resources are distributed throughout the world
- discuss the problem of world hunger and explore possible solutions

Procedure:

1. Make tickets and divide up small pieces of candy or use grain such as kernels of corn for participants. Use the following table to determine how many tickets and pieces of candy or kernels of corn to assign each "continent." For example, if you have 20 people and 100 pieces of candy or corn, make 4 "Africa and Middle East" tickets, and allocate 3 pieces of candy or corn for that continent. If you have a different number of people or amount of candy/corn, use the percentages in the table to calculate the numbers for your situation.

Continent	% of world total	# people for a group of 20	# people for a group of 30		% of world total income/ wealth	# candies/corn out of 100 pieces
Africa and the Middle East	11	2	3		2	2
Asia	60	12	18		30	30
Latin America and the Caribbean	8	2	3		4	4
North America (United States and Canada)	6	1	2		34	34
Europe and other industrialized countries	15	3	4		30	30
TOTAL	100%	20	30		100%	100

2. Have each participant draw a ticket assigning them to a continent, and have them go to an area of the room designated for that continent. To increase the drama, be creative in setting up the room. For example, have people assigned to North American sit at one table, those in Europe at another, while people assigned to Latin America and the Caribbean sit on a rug or pillows; those in Africa and the Middle East and Asia, sit on the floor in a small crowded place. Keep the continent groups separate to make it easier to have group discussions later.

Meal Planning on a Limited Income

Name(s) _____

Directions: Plan one week's menu for your assigned family following the budget you have been assigned and meeting the daily guidelines of MyPyramid.

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Feast or Famine?

1. Invite guests to a meal. As the guests enter the room, have each person write his/her name on a slip of paper and place in a basket.

2. Once everyone has arrived, announce where guests will be seated:

    a. 3% are from "developed" countries; these guests sit at a table which is elegantly set with tablecloth or placemats, napkins, a centerpiece, candles, fine dinnerware and silverware.
    b. 17% of guests are from "developing" countries. These guests have chairs to sit on but the table is not set at all. They have paper plates and a spoon.
    c. 70% of guests are from "third world" countries. These guests are asked to sit on the floor off in a corner of the room.

3. Meals are then provided for each group:

    a. This group gets a 3-4 course meal that is served to them by waiters or waitresses. It should include a salad, a meat entrée with two or more side dishes, bread, butter or margarine, milk and dessert.
    b. This group receives a vegetable dish of some sort, bread and milk. It is not served to them but placed in the middle of the table.
    c. This group receives a large bowl of rice (only about ½ cup per person). They have no silverware and no plates/bowls; they should eat from the large bowl with their fingers. If they do receive water to drink, it should be dirty. If desired, members of this group can be allowed to "beg" for food from the other groups.

4. To add to the effectiveness of this activity, the leaders of the event can ring a bell every few minutes and announce how many people in the world have died of starvation in the time that has past. (The United Nations, 2002, states that 1 person dies of malnutrition or starvation every four seconds).

INFLUENCES ON NUTRITIONAL PRACTICES AND WELLNESS ACROSS THE LIFESPAN
Psychological, Cultural and Social Influences on Food Choices
Grade Levels: 9-12

Concept: Legislation and regulations

Comprehensive Standard: 6.1 Analyze the factors that influence nutritional practices and wellness across the lifespan

Technical Standard: 6.1.4 Examine legislation and regulations related to nutrition and wellness issues

LESSON COMPETENCIES:

- Explore legislation and regulation related to nutrition and wellness issues
- Discuss the role of school in providing healthy food choices

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students assist in nutrition education of other students related to school lunches and school vending machines
- Students promote a healthy school nutrition environment

Resources Needed:

- Copies of handouts for all students
- Copies of the most recent Dietary Guidelines (or posters)
- Possible Internet access to access the *MyPyramid* materials

References for teachers and students:

Team Nutrition, a program developed by the USDA to promote healthy eating and physical activity has several resources appropriate for middle school students. These include a Student Activity Guide and Teacher's Guide with several activities called *yourSELF*. In addition, information about *Team Nutrition* and research statistics on the status of child nutrition in the United States is available. Several items can be downloaded for free at their website or ordered at the site. You can access these websites at: http://teamnutrition.usda.gov/library.html or http://www.fns.usda.gov/tn/. The South Dakota Team Nutrition initiative can be accessed at the following web address: http://doe.sd.gov/oess/cans/nutrition/index.asp.

Information about federal Child Nutrition Programs including the *National School Lunch Program* can be found at www.fns.usda.gov/cnd/Default.htm. For specific information about school lunch, click on "*National School Lunch Program"*; click on "Program Fact Sheet". Information about other federal programs and links to other government sites are available. There is also information about government policies governing the sale of competitive foods (i.e. vending machines) in schools. Click on "FAQs"; click on "Competitive Foods". For information on meal planning guidelines at this site, click on *National School Lunch Program*; click on "meal planning".

Lots of information can be accessed at the South Dakota site for *Child and Adult Nutrition Services* including information related to each of the nutrition programs it is

responsible for. It also includes links to sites related to teen nutrition and for teachers (http://doe.sd.gov/oess/cans/index.asp).

A list of foods available for schools through the USDA *Food Distribution Programs* is available at http://www.fns.usda.gov/fdd/foods/sy07-schfoods.pdf#xml=http://65.216.150.153/texis/search/pdfhi.txt?query=Foods+Available+to+Schools&pr=FNS&prox=&sufs=&order=r&mode=&opts=&cq=&sr=&id=4592c31619. The list is an estimate for commodities expected to be available for schools and institutions during the school/fiscal year. This could be used for meal planning activities.

NOTE TO TEACHER – A lesson plan on food labeling is included later in the curriculum.

Background Information:

Policies and regulations that directly or indirectly affect the supply or prices of food products, their safety and nutritional composition, or the information consumers receive about food all influence the food choices consumers make and ultimately, the quality of their diets. Ralston, K. (1999) *How Government Policies and Regulations Can Affect Dietary Choices,* in America's Eating Habits: Changes and Consequences; the entire publication is available to download at http://www.ers.usda.gov/publications/aib750/aib750q.PDF.

The federal government is responsible for a multitude of programs including food safety regulations – including inspections of processing plant and food products, approval of food additives, and restrictions on pesticide use and animal drugs. These regulations can impact food prices or availability, and their implied assurance of safety is information that can also affect the demand for food.

The government is also responsible for information regulations – including labeling requirements and advertising restrictions, standards of identity and product grades. These directly influence the kind of information consumers receive about foods, and therefore, the demand for foods.

In addition, other government programs are responsible for food assistance programs and school lunch programs. Every school day, more than 25 million children in 93,000 schools across the country eat a lunch provided through the *National School Lunch Program* (NLSP). More than half of these children receive the meal free or at a reduced price. The US *Department of Agriculture* (USDA) recognizes the program's national health responsibility to provide school meals that meet nutrition objectives. USDA updated the policy in the 1997 school year so that school meals would comply with the Dietary Guidelines. (*National School Lunch Program* information is at http://doe.sd.gov/oess/cans/index.asp.)

In South Dakota, *Child and Adult Nutrition Services* (CANS) (doe.sd.gov/oess/cans/index.asp)is responsible for administering the USDA's *Food and Nutrition Services* (FNS) and Food Distribution programs. These programs furnish resources to eligible local agencies that provide food in meals or commodities to participants including National School Lunch, School Breakfast, Special Milk, Summer Food Service, Child and Adult Care Food, Nutrition Education and Training and Commodity Distribution for child nutrition programs, charitable institutions, emergency feeding programs, soup kitchens and food banks. (CANS web site, see reference list).

The *National School Lunch Act* mandates that school meals "safeguard the health and well-being of the Nation's children." Participating schools must serve lunches that are consistent with the applicable recommendations of the most recent Dietary Guidelines for Americans. The regulations apply only to meals for which the school is requesting reimbursement. These meals are called "reimbursable" meals and they qualify for free or reduced price status. Other foods may be served and called a la carte foods.

The current *Team Nutrition* (www.fns.usda.gov/tn) project is an initiative of the USDA *Food and Nutrition Service* to support the Child Nutrition Programs through training and technical assistance for foodservice, nutrition education for children and their caregivers, and school and community support for healthy eating and physical activity. The *South Dakota Team Nutrition* (doe.sd.gov/oess/cans/nutrition.asp) program provides resources for South Dakota schools.

Team Nutrition's Goal is to improve children's lifelong eating and physical activity habits by using the principles of the *Dietary Guidelines for Americans* and *MyPyramid*. USDA has launched the effort to foster healthy school nutrition environments that support healthy eating and physical activity. Nutrition education is a vital component of the program.

Learning Activities:

High School Level

- Ask students to consider the question - How is the government involved in the food industry? Ask them to brainstorm all of the ways that the government is involved (i.e. food labeling, inspection of packing plants, etc.)
- Brainstorm the benefits to the consumer of government regulations and policies (safe food supply, guidelines for healthy eating--Dietary Guidelines, etc.)
- Use the transparency master, *What Happens Now?*, to start a discussion related to the impact of policies and regulations on consumers and their food choices.
- Ask students to plan school lunch menus considering the Dietary Guidelines, likes and dislikes of students, commodities provided to the schools and the regulations of the school lunch program (see reference list). Use the Team Nutrition and Child and Adult Nutrition Program websites as resources. Recipes can be found at these sites as well.
- Hold a debate on the contents of vending machines in schools. Should vending machines be banned? Should the contents of vending machines be restricted to food choices that are healthier choices for students? **NEW –** Several websites have articles and information on the topic but students can search for current information on the topic as well:
    - *Newsweek*, April 6, 2006 – "No More Junk" – article about federal efforts to ban unhealthy foods in school cafeterias and vending machines http://www.msnbc.msn.com/id/12359367/site/newsweek/

- *New York Times*, May 30, 3006 – "Food Wars: Debating the Merits of School Restrictions on Food and Drink" – a lesson plan and article on this issue http://www.nytimes.com/learning/teachers/lessons/20060530tuesday.html
- *Schools Embracing Healthy Vending Programs* – a May 24, 2006 posting from the *National School Nutrition Association* - http://www.schoolnutrition.org/Index.aspx?id=1978
- **NEW** Links to several articles on the topic are available at the *Center for Science in the Public Interest* website http://www.cspinet.org/nutritionpolicy/policy_options.html#ImproveSchoolFoods. They have a new report entitled "Sweet Deals: School Fundraising Can Be Healthy and Profitable" that is also a good source of information.
- The latest policy on vending machines from the beverage industry (Spring, 2006) is available at the *American Beverage Association* website http://www.ameribev.org/pressroom/2005_vending.asp
- The 2006 *American Dietetic Association* position paper on this topic is available at http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_adap0100_ENU_HTML.htm.
- The *New York Times* also has a lesson plan on this topic: "Food Wars", http://www.nytimes.com/learning/teachers/lessons/20060530tuesday.html. Debating the Merits of School Restrictions on Food and Drink.
  In this lesson, students explore the concepts and content necessary to debate whether or not schools should regulate the quantity or type of food and beverages students consume, and develop position papers.(May 30, 2006)

- As an alternative to the debate, ask students to create a display on the issue of school vending machines – use the display at school events: parent-teacher conferences, athletic events, etc. and/or display in the public library in the community

Extended Learning Activities:

- ***Team Nutrition*** – Become a *Team Nutrition* School and develop activities to teach younger children about nutrition and healthy food choices.
- **After School Fitness** – Start a program with after school fitness activities in your school. Plan activities for a variety of age groups. The goal is to increase physical activity in your school.
- **FCCLA Snack Store –** As part of an entrepreneurial project or fund raiser, open a Snack Attack Shop that features healthy snack choices from *MyPyramid* (http://www.*MyPyramid*.gov/) such as skim or 1% milk, string cheese, whole grain crackers, whole grain pretzels, rice cakes, lean jerky, dry roasted or raw almonds, dry roasted soy nuts, whole dill pickles, fresh fruits or cut up veggies such as carrot and celery sticks, single-serve fruit or yogurt. FCCLA members should research to include foods that meet their school's wellness policy.
- **Cafeteria Collaboration –** Work with your school food service staff as a team to develop menu plans that meet the guidelines for healthy meals

required by government regulations and *Team Nutrition*. Post attractive menus and posters with nutrition information around the school to promote school lunch in your school.

Academic Connections – NEW

- ✓ **Social Studies –** Research the history of the school lunch program and create a timeline of events related to the program by visiting the following websites http://www.foodmuseum.com/exhbitschoollunch.html and http://www.fns.usda.gov/cnd/Lunch/AboutLunch/ProgramHistory_1.htm
- ✓ **Language Arts –** Research school lunch programs in other countries at http://news.bbc.co.uk/1/hi/education/4298245.stm
- ✓ **Speech/Communications –** Work with the FCS teacher on the debate on school vending machines.
- ✓ **Government -** Ask students to draft a "Healthy Snack Policy" for your school. Discuss: How do policy makers go about determining policy? What resources can you use to assist you in the draft? What rationale/scientifically based research will you provide to support the policy? What is the procedure for establishing a school policy? Who are the decision makers in terms of adopting a policy? For a brief overview, see this website: http://www.dole5aday.com/Teachers/ClassroomResources/Instructional/T_HealthySnack.jsp.

What Happens Now?

1. The government recalls thousands of pounds of ground beef suspected to be contaminated with E. coli bacteria. The hamburger had been sold to the local grocery store chain in your town.

2. The FDA declares that red dye number 2 must be discontinued because it has been linked to cancer in research experiments.

3. The local pizza restaurant in your community receives a low rating on their health inspection. They were cited for several food safety violations.

4. The FDA approves the use of Olestra, a fat substitute as safe for human consumption.

5. Your family has decided to use no pesticides in your garden.

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Nutrition

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.1 Analyze the effects of nutrients on health, appearance, job performance and personal/family life

LESSON COMPETENCIES:

- Evaluate the role of key nutrients in maintaining and sustaining good health
- Identify food sources of the key nutrients
- Analyze the nutritional needs of adolescents
- Identify appropriate guidelines for healthy eating

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students identify the nutrients in food
- Make personal food choices that are nutrient dense.

Resources Needed:

- Copies of handouts for all students
- 3/5 note cards
- Nutri- Bingo cards for all students
- Internet access for all students
- See NOTES TO TEACHER to determine alternatives which may need to be prepared

References for teachers and students:

West, D. (2006). Nutrition and Fitness: Lifestyle Choices for Wellness. Goodheart-Wilcox Publishing, www.g-w.com or phone at 1-800-323-0440 Chapter 3, *How Nutrients Become You* and Chapter 11, *Nutrition for All Ages*; Chapters 5-10 address each of the six key nutrients: carbohydrates, fats, proteins, vitamins, minerals and water.

Largen, V., and Bence, D. (2006). Guide to Good Food. Goodheart-Wilcox Publishing, www.g-w.com or phone at 1-800-323-0440 see Chapter 2 *Nutritional Needs*, Chapter 3, *Making Healthful Food Choices* and Chapter 4, *Nutrition through the Life Cycle.*

"Eating Habits of Today's Youth" is the focus of the May, 2001 issue of the *Nourishing News* newsletter, a publication of the *Nutrition Information Resource Center* at Clemson University http://virtual.clemson.edu/groups/NIRC/archive.php. There is a link for subscribing to Nourishing News, a free email newsletter from Clemson.

Curriculum for elementary and middle grades utilizing a computer-assisted approach featuring *MyPyramid for Kids* have been developed by the *Oregon Dairy Council*, 10505 S.W. Blvd., Portland, OR 07219. Phone is (503) 229-5033 and web address is www.oregondairycouncil.org

A blank *MyPyramid* copy master is available at the USDA website at http://www.mypyramid.gov/kids/index.html; click on the coloring page.

Some excellent activities on calcium and iron in the diet, two nutrients often at low levels in the diets of adolescents, especially females, can be found at the *Virginia Tech Cooperative Extension Service* website. Access the calcium activity at www.ext.vt.edu/pubs/nutrition/348-019/348-019.html. A similar activity on iron can be accessed at www.ext.vt.edu/pubs/nutrition/348-371/348-371.html.

www.kidshealth.org *KidsHealth* provides health information for children from birth through adolescence, presented on separate areas for kids, teens and parents. One section focuses on teen health and includes articles on nutrition.

Several activities on nutrition developed by youth as a part of thinkquest can be found at http://www.thinkquest.org/library/index.html.

Find out more about osteoporosis and prevention strategies by visiting the following website: www.nof.org/prevention/risk.htm.

NEW The *New York Times* has an archive of lesson plans with related news articles. Check out these lesson plans for use in this area:

Counting Calories http://www.nytimes.com/learning/teachers/lessons/20050210thursday.htm
Creating Word Problems about Cereal Nutrition - In this lesson, students evaluate the health of breakfast foods. They work in pairs to create and solve word problems using cereal nutrition data. For homework, they solve additional problems formulated in class and write short essays commenting on what they have learned. (February 10, 2005)
NOTE TO TEACHER: The USDA in the Healthier US School Challenge provides guidance to consumers that grain products must be at least 51% whole grains to be considered as such; this guidance states that if the first ingredient is a whole grain, the product can be counted as a whole grain for purposes of the challenge.
See http://teamnutrition.usda.gov/HealthierUS/food_guidance.pdf for this information.

Food for Thought
http://www.nytimes.com/learning/teachers/lessons/19990525tuesday.html?searchpv=learning_lessons
Investigating Nutritional Components of Food in the Science or Health Classroom
In this lesson, students explore various nutritional components found in foods to analyze their sources, effects on the human body, and relationship to a healthy diet. Each student researches a different nutritional component and then creates an informative poster incorporating the research. (Tuesday, May 25, 1999)

You Are What You Eat
http://query.nytimes.com/gst/learning.html?grade=6%2d8&lquery=EAT&frow=30&
Evaluating the Nutritional Components of One's Diet - In this lesson, students evaluate their eating habits, focusing on the ways in which one assesses whether or not his or her diet is nutritious. Students work in small groups to design a menu for a healthy lunch and write a paragraph justifying their choices. For homework, students maintain a food diary over the course of a week and write a reflective essay discussing their food intake and proposing ways to make their diet healthier. (Tuesday, December 29, 1998) NOTE TO TEACHER: You will need to update using *MyPyramid*.

Background Information:

Nutrition – the process by which your body uses the food you eat. Nutrition has a major role in good health throughout the life cycle. However, often food choices are made based more on personal and social reasons than nutrition (refer to Unit I.)

Adolescents need extra nutrients to support the adolescent growth spurt, which begins in girls at ages 10 or 11, reaches its peak at age 12 and is completed by about age 15. In boys, it begins at 12 or 13 years of age, peaks at age 14 and ends by about age 19. In addition to other nutrients, adequate amounts of iron and calcium are particularly important as the adolescent body undergoes this intensive growth period. From ages 9 to 18 years, both males and females are encouraged to consume a calcium-rich diet (1,300 milligrams daily) in order to ensure adequate calcium deposits in the bones. This may help reduce the incidence of osteoporosis in later years. By eating at least three servings of nonfat or low fat dairy products daily, the recommended calcium intake can be achieved. For persons who don't wish to consume dairy products, a variety of other calcium sources are available such as green, leafy vegetables, calcium-fortified soy products and other calcium-fortified foods and beverages. Teens' caloric needs vary depending on their growth rate, degree of physical maturation, body composition and activity level. Overweight is one of the most serious nutrition problems of adolescents, particularly among Native Americans, Hispanics and African-Americans. (http://www.ific.org/nutrition/kids/index.cfm, 2004)

However, this dramatic increase in energy and nutrient requirements coincides with a time when many teens develop irregular eating habits because they are frequently eating away from home and are often subject to the outside influence of their peers, for example in the areas of fast foods, fad diets, skipped meals, snacking and high-carbohydrate foods. Condemnation of such practices does little to assist adolescents in developing healthy eating habits.

The *Washington State Department of Health* (http://www.doh.wa.gov/) provides this information for adults who care about teens stressing the importance of nutrition and healthy eating in adolescence:

- The rate of growth in adolescence is second only to that of infancy
- Mature bones, body tissues and organs are still developing
- Too little food or the wrong food can affect sexual maturation and growth
- Normal bone strength may never be reached if a youth doesn't get adequate calcium
- Eating habits developed during adolescence can set the tone for a lifelong habits
- Poor dietary habits are related to obesity, osteoporosis, cardiovascular (heart) disease and diabetes
- Studies have shown that heart disease can begin in childhood and progress into adulthood
- Over-eating, under-eating and eating disorders can have devastating health and economic impacts
- Because each teen may be at a different phase of growth, a "one size fits all" approach to nutrition doesn't always work. Teens' food needs vary depending on growth rate, degree of maturation, body make-up, physical activity and health status.
- Teens should eat frequent meals and snacks.

- Eating breakfast has been shown to help teens be more alert at school and perform better in sports activities as well as maintain a healthy weight.

NEW According to a March 2005 report *Nutrition and the Health of Young People* (http://www.cdc.gov/HealthyYouth/nutrition/facts.htm) from the *Centers for Disease Control* (CDC) (www.cdc.gov/), the following is indicative of the eating habits of America's youth:

- Less than 40% of children and adolescents in the United States meet the US Dietary guidelines for saturated fats. They exceed the recommended amounts.
- Almost 80% of young people do not eat the recommended number of servings of fruits and vegetables.
- Only 39% of children ages 2-17 meet the USDA's dietary recommendation for fiber.
- 85% of adolescent females do not consume enough calcium. During the last 25 years, the consumption of milk--the largest source of calcium--has decreased 36% among adolescent females. Additionally, from 1978-98, average daily soft drink consumption almost doubled for adolescent females, increasing from 6 oz. to 11 oz. and almost tripled for adolescent males, from 7 oz. to19 oz.
- A large number of high school students use unsafe methods to lose or maintain weight. A nationwide survey found that during the last 30 days preceding the survey 13% of students went without eating for one or more days, 6% had vomited or taken laxatives, 9% had taken diet pills, powders or liquids without the advice of physicians. Harmful weight loss practices have been reported among girls as young as 9 years old.
- Adolescent girls appear to be at the highest risk for dietary inadequacies. This may be related to their eating patterns. Compared to other children, female teens have a higher tendency to skip breakfast, eat fewer meals and snacks, eat a larger proportion of meals and snacks away from home and drink the least fluid milk.

Nutrients:

A nutrient is a chemical used by the body for 1) building and repairing body tissue, 2) providing energy and 3) regulating body processes. There are 6 groups of nutrients: carbohydrates, proteins, fats, vitamins, minerals and water. The human body needs over 40 different nutrients and food is the major source of nutrients for the body. However, no one food provides all of the nutrients the body needs.

Learning Activities:

Middle School Level

- Give each student a 3X5 note card; ask them to write down one or two things they have heard or know about nutrition or nutrients. Ask each student to share what he/she has written on his/her card. Discuss each statement and clarify nutrition misinformation.
- Define nutrition. Ask students why nutrition is important. Discuss the benefits of healthy eating/sound nutritional food choices.
- Ask students to complete the chart, *Nutrition Knowledge*.

  NOTE TO TEACHER: You may ask the students to complete the chart using a text, published article or website as resources; see reference list above for suggestions. You may choose to use the chart as a graphic organizer for an illustrated lecture or PowerPoint presentation on the key nutrients. Discuss with students.
- Using a blank MyPyramid, ask students to identify the key nutrients that would be found in the foods in each group.
- Assign each student one nutrient (protein, carbohydrates, fats, Vitamin A, Vitamin C, B vitamins, iron, calcium); ask them to create a word search containing a minimum of ten foods that are considered "good" sources of that nutrient. Explain the guidelines used for food labeling to define a good source of each nutrient. (Use the website: www.puzzlemaker.com.)
- Play "Nutri-Bingo" to review the functions and sources of the key nutrients.

  NOTE TO TEACHER: If you want to reinforce the importance of calcium in the diet of teens, use the activities in the calcium education program for girls 11-14, *Calcium! Do You Get It?* (See reference list.) You will need to develop the questions and responses for this game based on what you addressed with students. Students list the responses in the cards.
- Students can solve the case of the missing nutrient at "On the Case"; students read a short food mystery and then try to figure out the missing nutrient from the character's diet. *Nutrition Sleuth Casebook* http://www.exhibits.pacsci.org/nutrition/sleuth/casebook.html

High School

- To introduce the study of nutrient, ask students to complete a KWL chart about nutrition and nutrients. Complete the first two columns indicating "K – I know, W – What I want to learn more about. The L – What I learned" can be completed at the conclusion of the study of nutrition and nutrients.
- Review the nutrients, their functions and food sources using the chart, *Nutrition Knowledge*.

  NOTE TO TEACHER: You may ask the students to complete the chart using a text, published article or website as resources or you may choose to use the chart as a graphic organizer for an illustrated lecture or PowerPoint presentation on the key nutrients. Discuss with students.
- Ask students to complete the "Nutri-Quiz" at the *Nutrition on the Web* (http://library.thinkquest.org/10991/)website. Clarify questions.

- Use the case studies at the Nutrition on the Web site with students. Discuss the nutrition related problems presented in these case studies.

  NOTE TO TEACHER: You could ask students to read the cases on the Web and lead a discussion or ask them to write responses to the cases presented. Or you might want to type up the case studies and present to student on note cards and lead a class discussion related to the cases presented. Ask students to write their own case studies related to nutrition.
- Ask students to read the article *Eating Habits of Today's Youth* (see reference list). Ask students about their reaction to the information presented.
- Include additional activities on calcium and iron, two nutrients often lacking in adolescent diets. See reference list for web based activities. Discuss alternate ways that teens can get calcium and iron in the diet. Ask students to research osteoporosis and iron-deficiency anemia.

Extended Learning Activities:

Taste Panel – Updated - Hold a tasting activity with a variety of fruits and vegetables, a whole grains tasting activity or lean protein (lean meats, low-fat, and soy cheese, meatless meats, beans, tofu, different kinds of nuts, etc.)

1. **Milk Mustache Contest** - visit the www.whymilk.com site and have fun with the milk mustache. Considering holding a milk mustache contest at your school with pictures of teachers and students. Coordinate a drink milk campaign in your school with this activity. Make posters promoting milk and milk products. Make milk mustache poster from the photos of contest winners.

Nutrition Knowledge

Nutrient	**Why Needed**	**Major Food Sources**
Carbohydrates		
Fats		
Vitamin A		
Vitamin C		
Thiamin		
Niacin		
Riboflavin		

Nutrient	Why Needed	Major Food Sources
Calcium		
Iron		
Water		

Nutri – Bingo

N	U	T	R	I
		Free		

Directions for NUTRI-Bingo

1. Make a set of blank BINGO cards – one for each student in the class.
2. On the board or on an overhead slide, have a list of nutrition terms that you want to review with students; ask student to put one word in each box on their bingo card, each should write the words in random order on the card.

NOTE To Teacher: You could generate a set of bingo cards on the computer – one for each student should you so desire.

To play the game, students listen to the clues read aloud from the index cards and mark the box that they think has the correct answer. A chip or some other small object is placed on each box as clues are read. The game is played in the traditional BINGO manner until a winner is declared!

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Nutrition – Calcium **NEW**

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.1 Analyze the effects of nutrients on health, appearance, job performance and personal/family life

LESSON COMPETENCIES:

- Evaluate the role of key nutrients in maintaining and sustaining good health
- Identify food sources of the key nutrients
- Analyze the nutritional needs of adolescents
- Identify appropriate guidelines for healthy eating

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students identify the nutrients in food
- Make personal food choices that are nutrient dense.

Resources Needed:

References for teachers and students:

NEW The *Dietary Guidelines for Americans* has been published jointly every 5 years since 1980 by the Department of Health and Human Services (HHS) and the Department of Agriculture (USDA). The *Guidelines* provide authoritative advice for people two years and older about how good dietary habits can promote health and reduce risk for major chronic diseases. They serve as the basis for Federal food and nutrition education programs. This site will provide scientifically based research information on calcium in the diet as well as a link to food sources of calcium**.**

NEW Learn more about the scientific justification for 3 servings of low fat milk products/day at Science Base: Selected Food Groups; other food groups are discussed as well.

NEW The **Center for Disease Control Bone Health** site has a wealth of information related to bone health, osteoporosis, food sources of calcium and links to other credible sources of related information. They also provide a link to the **National Osteoporosis Foundation** with information on this disease and how to prevent it.

NEW The USDA has a webpage with links to numerous sources of information on osteoporosis and calcium consumption at their **Diet and Disease** page.

NEW The **Center for Young Women's Health**, a part of Children's Hospital Boston, provides a list of calcium rich foods and the amount of calcium found in each at this webpage, **Calcium and Teens: How to Prevent Osteoporosis**.

NEW The Milk Matters campaign offers a variety of free materials on the importance of calcium in the diets of children and teens. Brochures, booklets, fact sheets, coloring books, stickers, and posters are among those items available on its recently revamped Web site, most in both English and Spanish. The **Milk Matters Web site**, www.nichd.nih.gov/milkmatters, is also an excellent source for information on calcium for health care professionals and nutrition educators**.**

The National Dairy Council website has a wealth of information on dairy consumption as well as educational resources at www.nationaldairycouncil.org. The section labeled as Additional Educational Materials is best suited to middle and high school level students. Other materials are available for k-6 education and could be used by FCCLA members or middle/high school students to promote nutrition education with younger students. NOTE TO TEACHER: The 2005 Dietary Guidelines for Americans recommend 2 cups of milk or milk equivalent for children 8 and younger. More than that could lead to consuming too many calories. The 3 a day recommendation by the National Dairy Council is for children over age 8. The National Dairy Council materials promote milk and dairy products so teachers should make students aware that there are alternative ways to get calcium for children who don't like milk or can't drink milk. Encourage students to read labels to determine their calcium intake.

The **American Dietetics Association** provides additional information including a fact sheet on **Calcium and Vitamin D** provides solid nutritional information for youth and educators. The fact sheet includes a table with the recommended guidelines for calcium and Vitamin D consumption for all age groups.

3-A-Day™ of Dairy www.3aday.org
Information, tip sheets, recipes and snack ideas you can use to extend the dairy wellness message to parents and beyond.

West, D. (2006). Nutrition and Fitness: Lifestyle Choices for Wellness. Goodheart-Wilcox Publishing, www.g-w.com or phone at 1-800-323-0440
Chapter 3, *How Nutrients Become You* and Chapter 11, *Nutrition For All Ages*; Chapters 5-10 address each of the six key nutrients: carbohydrates, fats, proteins, vitamins, minerals and water.

Largen, V., and Bence, D. (2006). Guide to Good Food. Goodheart-Wilcox Publishing, www.g-w.com or phone at 1-800-323-0440 see Chapter 2 *Nutritional Needs*, Chapter 3, *Making Healthful Food Choices* and Chapter 4, *Nutrition Through the Life Cycle.*

A calcium education program for girls 11-14, *Calcium! Do You Get It?* is available for downloading at http://www.cfsan.fda.gov/~dms/ca-toc.html Many of the activities can be adapted for older teens as well.

Another nutrition education program is Girl's Health, a government site; check out the page on Bone Health; it features a question and answer section as well as a list of calcium-rich foods and the amount found in each.

Background Information:

Calcium is one nutrient lacking in the diets of many children and teens and yet it is an essential nutrient found in great abundance in the body. 99% of all calcium in the body is found in bones and teeth. Calcium plays important roles in nerve conduction, muscle contraction and blood clotting. If calcium levels in the blood drop below normal,

calcium from the bone will be taken by the body and put into the blood in order to maintain calcium levels.

Osteoporosis – The following information on this disease comes from the National Osteoporosis Foundation. Osteoporosis means "porous bone" and is characterized by a decrease in bone mineral density, bone calcium content and an increased risk of fractures. Osteoporosis risk factors that cannot be changed include:

* being female
* postmenopausal
* having a small skeleton
* being Caucasian/Asian
* family history of osteoporosis and fractures
* advanced age

Osteoporosis risk factors that can be changed include:

* medications with negative affects on bone
* inadequate or excessive intake of nutrients
* sedentary lifestyle
* excessive exercise
*low body weight
* cigarette smoking
* high alcohol consumption

Even though the symptoms of osteoporosis aren't noticed until later in life, more health professionals are referring to osteoporosis as a childhood disease with adult consequences. The **National Institute of Arthritis and Musculoskeletal and Skin Diseases** states that the amount of bone tissue in the skeleton (known as bone mass) peaks by late 20s. At that point, bones have reached maximum strength and density. Up to 90% of peak bone mass is acquired by age 18 in girls and 20 in boys.

According to the **National Institute of Child Health and Human Development**, in the years of peak skeletal growth, teenagers get more than 25% of their adult bone and by the time teens finish their growth spurts around age 17, 90% of their adult bone mass is established. Furthermore, research suggests that peak adult bone mass may even be reached as early as late adolescence at multiple sites, especially the proximal femur and vertebrae. Research indicates that peak calcium accretion (the body's maximum ability to retain calcium) occurs at age 12.5 for girls and 14 for boys.

Findings from nationwide food intake surveys reveal that teens' low calcium intakes make it unlikely that they will reach their full genetic potential for bone mass development. Considering the wide gap between teens' actual calcium intake and the amount of calcium needed to reduce the risk of osteoporosis, it is critical that efforts be made to improve the calcium status of teens.

According to the National Academy of Science, the recommended dietary reference intakes for calcium are:

Adolescents 9-13 years old 1,300 mg per day Adolescents 14-18 1,300 mg per day

The American Dietetic Association fact sheet, **Calcium and Vitamin D: Essential Nutrients for Bone Health** makes the following recommendations for a lifetime of healthy bones:

* consume 3 servings of low-fat or fat-free milk or other dairy products daily
* supplement your diet with calcium from calcium-fortified foods and beverages, if you don't or can't consume milk
* follow an overall healthy eating plan using the MyPryamid Food guidance system
* be physically active with weight-bearing exercise like walking, running or weight training.

2005 Dietary Guidelines for Americans **recommendations on Milk and Milk Products (http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter5.htm) include the following:**

Another source of nutrients is milk and milk products. Milk product consumption has been associated with overall diet quality and adequacy of intake of many nutrients. The intake of milk products is especially important to bone health during childhood and adolescence. Studies specifically on milk and other milk products, such as yogurt and cheese, showed a positive relationship between the intake of milk and milk products and bone mineral content or bone mineral density in one or more skeletal sites (see ***table 1*** *for information on equivalent amounts of milk products).*

*Adults and children should not avoid milk and milk products because of concerns that these foods lead to weight gain. There are many fat-free and low-fat choices without added sugars that are available and consistent with an overall healthy dietary plan. If a person wants to consider milk alternatives because of lactose intolerance, the most reliable and easiest ways to derive the health benefits associated with milk and milk product consumption is to choose alternatives within the milk food group, such as yogurt or lactose-free milk, or to consume the enzyme lactase prior to the consumption of milk products. For individuals who choose to or must avoid all milk products (e.g., individuals with lactose intolerance, vegans), non-dairy calcium-containing alternatives may be selected to help meet calcium needs (****app. B-4****).*

The following information (in italics) is from the Milk Matters education campaign of the National Institutes of Health, *The preferred source of calcium is through calcium-rich foods such as dairy products. Calcium-fortified foods and calcium supplements are other means by which optimal calcium intake can be reached in those who cannot meet this need by ingesting conventional foods.* The section Sources of Calcium (http://www.nichd.nih.gov/milk/prob/calcium_sources.cfm) provides additional information on meeting calcium needs.

The NICHD has selected low-fat or fat-free milk as an excellent source of calcium because it has high calcium content without added fat, and because the calcium is easily absorbed by the body. Low-fat and fat-free milk products are also good sources of calcium.

In addition to calcium, milk provides other essential nutrients that are important for optimal bone health and development, including:

- *Vitamins D, A, and B12*
- *Potassium*
- *Magnesium*
- *Phosphorous*
- *Riboflavin*
- *Protein*

Remember that for all sources of calcium, adequate Vitamin D from food or sunlight is also needed to help absorption.

Learning Activities:

Middle School Level

- Have students complete the *Test Your Calcium IQ* quiz available at the National Dairy Council website and discuss correct responses with students NOTE TO TEACHER – an answer key with supporting facts is provided
- Hold a Three-A-Day competition for one week by asking each student to complete the 3-A-Day Tracker Calculate how many grams of calcium consumed each day to see if students are meeting the recommended intake of calcium for their age and gender
- Conduct a Dairy Snackin' Lab using the recipe suggestions from the Power of 3 Planner or 33 Terrifically Tasty Snack Ideas at the National Dairy Council site. Conduct a Non-dairy Calcium Snackin' Lab with snack foods high in calcium that are found in non-dairy foods.
- Review the advertorials on the National Dairy Council website, have students create their own ads/posters to promote 3-A-Day dairy intake to students throughout the school system. Assign an age group or ask students to choose an age group to target.
- Conduct a taste panel of calcium rich foods in your class or school. Some examples include: leafy greens, fortified breakfast cereals, nuts, fortified juices, fortified soy milk, low fat cheeses, nonfat yogurt, etc. You might also purchase several flavors of milk. Develop a survey to compare calories, amount of calcium, fat and sugar content as well as determining the amount of each food they would need to get enough calcium. Also, consider determining the flavor favorites. Ask students if they would like to have flavored milk available at school. If flavored milk is not available in your community,

prepare some of the milk recipes at the **www.whymilk.com** site for the taste panel. Graph the results comparing student reactions to the various flavors and compare to unflavored milk – skim, 1%, 2% and whole. For more information about flavored milks, read *Flavored Milk: More Than Just Great Taste!* at http://www.nutritionexplorations.org/sfs/milkfacts.asp and learn more about one company that is making flavored milk by visiting "SPRING INTO ACTION WITH **FLAVORED MILK** In the beginning there was white. Then there was chocolate. Now, there's everything from banana to vanilla to orange." www.qchekd.com/pdf/5661.pdf

NOTE TO TEACHER: For this activity you will want to check on the availability of flavored milk in your community. Flavored milk can also be ordered through Internet sites or use some of the milk recipes as suggested on the student activities list. Remember to remind students that flavored milk will also have added sugar.

- Complete *The BEST Beverage* activity. You can find tables with the Nutritive Values of foods in most nutrition textbooks or at the NATS website: http://nat.crgq.com/mainnat.html

  NOTE TO TEACHER: For this activity, you will need to provide nutrition panel labels for each of the beverages OR provide samples of the actual products. The second option will be more realistic for students.

High School

- Have students complete the *Test Your Calcium IQ* quiz available at the National Dairy Council website and discuss correct responses with students NOTE TO TEACHER – an answer key with supporting facts is provided
- Conduct a breakfast lab featuring the recipes from Jumpstart Your Day with Breakfast handout; have students complete a nutritional analysis of each recipe using a nutritional analysis tools such as NATS at http://nat.crgq.com/mainnat.html How many mg of calcium are found in the food prepared?
- Find out more about the crippling disease related to the lack of calcium by having students complete the *In the Know About Osteo* activity.
  NOTE TO TEACHER: You will need to visit the website and complete a key before asking students to complete the activity.
- Using the Recommended Dietary Intake tables, find out how many milligrams of calcium should be included in your daily diet by completing the *How Much Calcium is Enough?* Activity. A table can be found at http://www.iom.edu/Object.File/Master/7/294/0.pdf (Page 2) or in nutrition textbooks.
- Ask students to plan a menu for Jamie, age 15, a lacto-ovo vegetarian; she/he will eat milk and egg products but no meat. Plan a day's menu that will provide her/him with the RDA for calcium without meat. Ask students to plan a menu for Jordan, age 15, a strict vegan, to provide his/her calcium needs.

Extended Learning Activities:

- **Dairy Dazzling Calcium Carnival –** Plan a Dairy Dazzling Calcium Carnival for elementary students or after school programs to promote the consumption of dairy foods and the 3-A-Day message; see the National Dairy Council website for a booklet to help plan the carnival including games and activities for the carnival. FCCLA members could use this as a Student Body project.
- Non Dairy Calcium Carnival – Co-sponsor/plan a second carnival or hold it at the same time as the Dairy Carnival with foods high in calcium that are nondairy products with food sources of calcium that include nondairy sources.

Academic Connections

√ **Mathematics –** after conducting the taste panel, have students graph the results of their survey of flavored milk and low-fat milk.

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Type 2 Diabetes

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.2 Examine the relationship of nutrition and wellness to individual and family health throughout the life span

LESSON COMPETENCIES:

- Define diabetes
- Identify risk factors for diabetes
- Explore the defenses against diabetes
- Plan meals appropriate for a diabetic

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students monitor physical activity by following Dietary Guidelines for physical activity
- Students set dietary and activity goals in order to reduce the risk of type 2 diabetes and other chronic diseases

Resources Needed:

- Internet access for all students or copies of articles identified for each student
- Copies of handouts for all students
- Menus from area restaurants and fast food establishments that students frequent

References for teachers and students:

Two very good articles on diabetes, *The Challenge of Type 2 Diabetes in Children* and *Diabetes: A Growing Concern,* from the Food Insights newsletter, a publication of the International Food Information Council Foundation can be found at their website at www.ific.org Conduct a search on the website for these articles and others on diabetes.

The National Center for Chronic Disease Prevention and Health Promotion (CDC) website has a lot of information on diabetes and diabetes prevention, including an annual fact sheet on diabetes, at www.cdc.gov/diabetes/ . The site also has many links to other reputable websites.

NEW More information can be found at the Juvenile Diabetes Research Foundation website found at www.jdrf.org/ . The site includes personal stories from teens and kids with diabetes that could be used for teaching activities as well as links to articles and other websites on diabetes. The site has information about Kids Walk To Cure Diabetes and this section of the website has a curriculum all about diabetes with lessons

that could be adapted for classroom use or as part of a service learning project focused on education about diabetes or fund raising for a cure, to go directly to the curriculum link see: www.jdrf.org/index.cfm?page_id=102995

NEW Medline Plus has an interactive tutorial on diabetes and meal planning; the weblink is www.nlm.nih.gov/medlineplus/tutorials/diabetesmealplanning/htm/_no_50_no_0.htm

NEW A website dedicated to diabetes can be found at www.diabetes.org . This site is the site of the American Diabetes Association and includes nutrition information, exercise information, recipes, games and puzzles and a section for kids with diabetes – lots of good interactive activities. Check out this site before moving forward with this lesson. There is a special section especially for teens with diabetes at www.diabetes.org/for-parents-and-kids/for-teens.jsp

NEW The Washington State University Extension service has a series of lessons with handouts available at http://nutrition.wsu.edu/diabetes/lwd.html

NEW – An entire curriculum is available on preventing Type II diabetes at www.alamoahec.org/html/diabetes/DiabetesCurriculum.pdf

NEW - The National Diabetes Clearinghouse Center from the National Institute of Health is an excellent source of information

NEW – A Recipe and Meal Planner Guide is also available as part of the National Diabetes Education Program.

NEW – An article clearing ups myths about Sweeteners and Desserts as it relates to dietary choices of diabetics is available at the American Diabetes Association site.

Background Information:

UPDATED STATISTICS Diabetes is one of the most serious health problems facing the world today (National Diabetes Education Program). The National Centers for Disease Control and Prevention (CDC) reported the following in the National Diabetes Fact Sheet, 2005

- 20.8 million people – 7.0% of the population – have diabetes
- About 176,500 people under the age of 20 years of age have diabetes.
- About 1 in every 400-600 children and adolescents has type 1diabetes.
- Overweight is a serious health concern for children and adolescents. Data from two NHANES surveys (1976–1980 and 2003–2004) show that the prevalence of overweight is increasing: for children aged 2–5 years, prevalence increased from 5.0% to 13.9%; for those aged 6–11 years, prevalence increased from 6.5% to 18.8%; and for those aged 12–19 years, prevalence increased from 5.0% to 17.4%.
- Overweight and obesity, influenced by poor diet and inactivity, are significantly associated with an increased risk of diabetes, high blood pressure, high cholesterol, asthma, arthritis and poor health status.
- The number of Americans with diabetes increased by 49% during the same decade from 1990-2000 (from 4.9% to 7.3% of the population)
- Although no ethnic group is untouched, diabetes is disproportionately affects American Indian, African American, Mexican American and Pacific Islander youth.

- Diabetes was the sixth leading cause of death listed on U.S. death certificates in 2002
- The risk for death among people with diabetes is about twice that of people of without diabetes of a similar age

Diabetes occurs when the body no longer makes or is able to use insulin, a hormone produced by the pancreas. Insulin allows the energy from carbohydrates in foods to be used by the body's cells. When insulin is not present or is ineffective, blood sugar levels rise. Over time, high blood sugar levels can cause damage to the eyes, nerves, kidneys and other vital organs.

There are 3 main types of diabetes: type 2, type 1 and gestational.

Type 2 diabetes accounts for about 90-95% of all diabetes cases. It occurs when the pancreas produces some, but not enough insulin or the body is unable to properly use the insulin that it produces. When the body cannot respond to insulin, glucose builds up in the blood.

Being overweight is the greatest risk factor for developing type 2 diabetes. This form of diabetes is considered for the most part preventable. According to the Center for Disease Control, many people with type 2 diabetes can control their blood glucose level with diet and exercise, by losing weight and by taking oral medication. This usually occurs in adults over 40 but people of any age who are overweight and lead a sedentary lifestyle are at greater risk for developing type 2 diabetes.

According to the National Diabetes Education Program (http://ndep.nih.gov), increasingly, health care providers are finding more children and teens with type 2 diabetes, a disease usually seen in people over age 45. Although there are no national data, some clinics report that one-third to one-half of all new cases of childhood diabetes are now type 2. African American, Hispanic/Latino and American Indian children who are obese and have a family history of type 2 diabetes are at especially high risk for this type of diabetes.

Far less common is type 1 diabetes, which occurs when the pancreas makes little or no insulin, regardless of activity or weight level. People with this form of diabetes must take insulin to regulate blood glucose. Type 1 diabetes occurs most often in children and young adults and requires daily injections of insulin to maintain normal blood glucose levels.

Gestational diabetes is a form of glucose intolerance that is diagnosed in some women during pregnancy. During pregnancy, gestational diabetes requires treatment to normalize maternal blood glucose levels to avoid complications in the infant. After pregnancy, only 5-10% of women with gestational diabetes are found to have type 2 diabetes. However, women who have had gestational diabetes have a 20-50% chance of developing diabetes in the next 5-10 years.

Risk factors for diabetes include:

- Being overweight or obese
- A sedentary lifestyle with little or no regular exercise
- A family history of diabetes or a member of a high risk racial or ethnic group. African American, Latino, Asian American, Pacific Islander or Native American are higher risk groups.
- A woman who has had a baby who weighs more than 9 pounds

Updated: The American Diabetes Association recommends these general guidelines for people with diabetes:

- Limit saturated fat to 7 % or less of daily calories; limit dietary cholesterol to less than 200 mg/day and intake of trans fat should be minimized
- Follow protein intake recommendations for that of the general population of 15-20% of daily calories
- Limit cholesterol to 200 milligrams or less daily
- Consume a minimum of 14 grams of fiber/1000 calories daily

Most of these guidelines are a good idea for the general population as well. Those who are overweight may also restrict calorie intake.

Learning Activities:

High School Level

- Write the word **diabetes** on the board, ask students to identify words or phrases that they associate with this disease by filling in words in a crossword puzzle fashion as in the example below:

D
D I A B E T E S
N A
S D
U L
L Y
I
N

Discuss the student's associations with these words. What do they know about diabetes?

- Invite a health professional, for example, registered dietitian, school nurse, local nurse or doctor to discuss diabetes, importance of diet and exercise for diabetics and health concerns related to diabetes.
- **NEW** Read about meal planning for diabetics in the series of articles, *Making Healthy Choices* (www.diabetes.org/nutrition-and-recipes/nutrition/healthyfoodchoices.jsp) found at the American Diabetes Association website; students should complete the study guide for the article, *Nutrition Guide for People with Diabetes*. Before reading, prepare the students by asking these questions:
  - Can diabetics eat the same foods as everyone else? Why or why not?
  - What foods do diabetics have to avoid or count carefully?
  - How would you know if you had diabetes?
  - What causes diabetes?

  Revisit these questions with students after they have finished the assignment. **NOTE TO TEACHER:** read the article and complete an answer key before using this activity.
- Considering the information discussed in the article, ask students to plan a *Meal and Exercise Plan* that follows the guidelines discussed in the article.

Compare this diet to *MyPyramid* and Dietary Guidelines and discuss how this diet would be healthy for all.

- **NEW** Use the transparency master, *Freddie's Food Choices*, and ask students to evaluate Freddie's food choices. Consider:
  -food groups
  -food portions
  -quality of food choices, for example – whole grain or refined grain, lean meat, low-fat dairy, wise fat/oil choices, snacks (of lack of),
- Ask students to read the article titles, *Your Guide to Eating Out* (http://www.diabetes.org/nutrition-and-recipes/nutrition/eatingoutguide.jsp) from the American Diabetes Association. Copies can be printed out using the printer friendly format. After reading the article, have students work in teams using menus from area restaurants and/or fast food establishments; then, ask them to complete a meal plan for a diabetic friend by finishing the activity *Eating Out and Diabetes*

Extended Learning Activities:

- **Student Body Project -** Prepare a display on diabetes for the local library or school library during National Diabetes Awareness Month (November) or National Nutrition Month (March)
- **Student Body Project -** Include a booth and information on diabetes as a part of a school-wide health and fitness fair.
- **After School Fitness Activities –** Plan physical activities for preschool or elementary school age children involved in after school care programs. Plan activities 2-3 times a week for a month. This could be duplicated for middle and secondary students during lunch period or before school if time permits.

NEW Academic Connections:

- ✓ **Science/Chemistry:** Reinforce science concepts by having students determine if a food contains starch by using an iodine test for starch. See the *Testing for Starch* for steps for a lab.

  NOTE TO TEACHER: A complete lab activity on *Identifying Basic Nutrients in Foods* can be found in the Food Science Lab Manual for text, Food Science: The Biochemistry of Food and Nutrition (2006) by Kay Yockey Mebas (FCS teacher) and Sharon Lesley Rodgers (Chemistry / Physics teacher).

- ✓ **Science/Biology:** Explore the relationship between genetics and diabetes; a curriculum addressing diabetes in the Native American population can be accessed at: http://www.ihs.gov/medicalprograms/diabetes/nutrition/nutritioncur06_index.asp
- ✓ An entire curriculum is available on preventing Type II diabetes at http://www.southcentraltxahec.org/html/diabetes/DiabetesCurriculum.pdf.
- ✓ A background article can be found at http://darwin.nmsu.edu/~molbio/diabetes/disease.html#Economic%20Impact%20of%20Type%20II%20Diabetes

- ✓ **Language Arts/Cultural Awareness** – Work with elementary education teachers and use The Eagle Books Series: A Guide for Educators and Communities

  As described at the CDC site, "The *Guide* includes more than 60 pages of cultural, physical, and nutritional activities. The activities, designed for

  classrooms (Head Start through 4th grade)and other community sites (e.g., home, libraries, community centers), are organized into five areas—storytelling, native culture and health, learning about healthy foods, participating in physical activity, and diabetes prevention. Many activities are cross-curricular, integrating health and physical education, social studies, science, art, and math. Teachers will find lists of suggested vocabulary and selected resources accompanying each activity, with vocabulary definitions and more extensive resource references provided in the resources section, including information about type 2 diabetes, eagles, and American Indian and Alaska Natives.

  The Eagle Books Series: A Guide for Educators and Communities (PDF, 809KB) is available in both electronic and printed formats.

Nutrition Guide for People with Diabetes

STUDY GUIDE

Name _____

Read the information about meal planning for people with diabetes found at *Making Healthy Choices* (www.diabetes.org/nutrition-and-recipes/nutrition/healthyfoodchoices.jsp), and answer the questions below:

1. What is a diabetes meal plan?

2. The right meal plan can help diabetics and all of us improve:

   a.

   b.

   c.

   d.

3. Why do diabetics need to take extra care in planning their eating and meal plans?

4. What medical professionals will help diabetics in developing meal plans?

5. For people with type 1 diabetes (the person must use insulin), food is one tool they can use to treat their diabetes. The goal of the food plan is to keep the blood glucose level as normal as possible. Therefore, meals should be planned at _____ times and the diabetic should closely monitor _____ _____ levels.

Daily Guidelines:

An easy way to develop a healthy meal plan is to Rate Your Plate. Complete the Rate Your Plate activity at the website.

6. According the Rate Your Plate guidelines, how should your plate be divided?

   a. About _____ of the plate should be filled with grains
   b. About _____ of the plate should be protein.
   c. About _____ of the plate should be fruits and non-starchy veggies.

7. What foods belong to the grain group? And what starchy veggies are a part of this group?

8. What foods belong to the protein group?

9. What foods belong to the fruit and non-starchy group?

10. A key message for people with diabetes is "Carbs Count" – they should limit the carb choices to ____ to ____ at one meal and ____ to _____ for snacks following the serving size recommendations. Why do diabetics need to be concerned about carbohydrates?

11. What is a dietitian? How can a dietitian help a person with diabetes?

MEAL AND EXERCISE PLAN

NAME _____

DAILY MEAL PLAN	EXERCISE PLAN
BREAKFAST	
SNACK	
LUNCH	
SNACK	
DINNER	

Freddie's Food Choices

Breakfast

Orange Juice – 1 glass
Cornflakes - 1 bowl
Lowfat milk – ½ cup
Bagel with margarine

Lunch

Roast Beef Sandwich
With mayo and mustard
Potato Chips – 12 oz. bag
Apple
Soda - 12 oz.

Dinner

Chicken – 4 ounces
Baked Potato with margarine
Broccoli – 1 cup
Lettuce Salad – 1 cup
Dressing – 1 tablespoon
Dinner Roll with margarine

Eating Out and Diabetes

NAME _____

Your friend, Jordan, was recently diagnosed with diabetes. Jordan is struggling in following a healthy eating plan, especially when eating out with friends. A group of friends has plans to go out on Friday night for dinner and a movie. You plan to stop at a local fast food restaurant for dinner before the movie. What kinds of things on the menu would be healthy choices for Jordan (and for the entire group of friends!)?

Testing For Starch in Foods

Directions for TEACHERS: Follow the steps below to set up a lab for students on testing food for starch. Work with a science teacher if possible.

Supplies needed:

- Food samples for each group
- Wax paper
- Bottle of iodine
- Eyedroppers
- Paper towels
- Latex gloves and lab coats/aprons, optional

1. Explain how iodine can be used to test if a food contains starch by demonstrating how iodine changes color when it touches starch – use a saltine cracker and drop one small drop of iodine. Explain how the color changes from brown to purple. Reinforce that only one small drop of iodine is needed.
2. **Warn** students to keep iodine off their hands and clothes to avoid stains; if possible use latex disposable gloves and lab coats or aprons to protect hands and clothing.
3. Have class work in groups of 2 or 3 for this activity.
4. Hand out the worksheets/lab reports with a list of foods that they will be testing. Ask them to make predictions as to which foods will have starch before beginning their testing.
5. Ask students to complete the lab report as they test each sample.
6. Discuss the results and ask students to compare their results to their predictions.
7. Explain the difference between simple and complex carbohydrates and the reasons why diabetics need to be concerned about counting carbs – discuss how the body breaks down carbs.

Adapted from a lesson at www.hallofhealth.org

Testing For Starch in Foods
Lab Report

Name(s): _____

Directions: After receiving directions from your instructor, complete the following lab report based on your observations.

Trial	Food	Prediction	Color	Conclusion
#1	Bread	Yes Starch No Starch		
#2	Cheese	Yes Starch No Starch		
#3	Pasta	Yes Starch No Starch		
#4	Pear	Yes Starch No Starch		
#5	Rice	Yes Starch No Starch		
#6	Beans	Yes Starch No Starch		
#7	Cabbage	Yes Starch No Starch		
#8	Egg white	Yes Starch No Starch		
#9		Yes Starch No Starch		
#10		Yes Starch No Starch		

Conclusions: Based on this experiment, what can you conclude about foods containing starch? What foods are higher in starch than others?

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Lesson Grade Levels: 9-12

Concept: Sports Nutrition

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.1 Analyze the effect of nutrients on health, appearance, job performance, and personal/family life
6.2.2 Examine the relationship of nutrition and wellness to individual and family health throughout the life span

LESSON COMPETENCIES:

- Explore the role of nutrition in athletic performance
- Define carbohydrate-loading
- Assess the role of sports drinks versus water
- Plan nutritionally adequate training diets
- Discuss the effects of performance enhancement supplements

Anticipated Behavioral Outcomes:

- Athletes choose foods from *MyPyramid* in planning pre- and post-competition meals.
- Athletes avoid questionable substances to enhance athletic performance.

Resources Needed:

- Copies of handouts for all students
- Internet access for all students

References for teachers and students NEW websites added:

West, D. (2006). Nutrition and Fitness: Lifestyle Choices for Wellness. Goodheart-Wilcox Publishing, www.g-w.com or phone at 1-800-323-0440 Chapter 16, *Eating for Sports Performance*, pp. 274-284.

NEW The President's Council on Physical Fitness has a fact sheet entitled, "Fast Facts About Sports Nutrition", http://www.fitness.gov/fastfacts.htm.

Sports & Nutrition - the winning connection, an educational web site at www.urbanext.uiuc.edu/hsnut/index.html **NOTE to TEACHER**: this site has not been updated to address *MyPyramid*.

NEW The *Mayo Clinic* (www.mayoclinic.com) has several articles on sports nutrition; a good reference is "Eating and Exercise: Time to Maximize Your Workout" (http://www.mayoclinic.com/health/exercise/HQ00594_D). There are also articles on carbohydrate loading and the dangers of performance enhancing drugs. See a list of all the articles at http://www.mayoclinic.com/health/sports-nutrition/SM00107.

A position paper on "Nutrition and Athletic Performance" (http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_adap1200_ENU_HTML.htm) from the *American Dietetic Association* is available but will be updated later in 2006.

The *University of Arizona* has info on Nutrition, Exercise and Wellness at http://nutrition.arizona.edu/new/coop_extension_pubs.phtml. Look under the topic of "Sports and Nutrition". Titles of fact sheets include:

- Calorie Needs Estimation http://nutrition.arizona.edu/new/files/01Calorie_Need_Estimates.pdf
- Protein Needs http://nutrition.arizona.edu/new/files/02Protein_Needs.pdf
- Carbohydrate Needs http://nutrition.arizona.edu/new/files/03Carbohydrate_Needs.pdf
- Serving Sizes - What Do They Look Like? http://nutrition.arizona.edu/new/files/11WhatSporstFoodSwapServingSizesLookLike.pdf
- Fluid Tips for Training and Competition http://cals.arizona.edu/pubs/health/az1387.pdf
- Food Tips for Training and Competition http://cals.arizona.edu/pubs/health/az1386.pdf
- Weight Gain Tips for Athletes http://nutrition.arizona.edu/new/files/17Weight_Gain_Tips_for_Athletes.pdf
- Weight Loss Tips for Athletes http://nutrition.arizona.edu/new/files/18Weight_Loss_Tips_for_Athletes.pdf
- How to Evaluate Ergogenic Aid Claims http://nutrition.arizona.edu/new/files/19How_to_Evaluate_Ergogenic_Aid_Claims.pdf

The *Kids Health/Teen Health* (www.kidshealth.org/) website sponsored by *Nemours Foundation* has several articles on topics of dehydration, the female athlete triad, a guide to eating for sports, as well as other resources appropriate for this topic; it is located at http://kidshealth.org/teen/food_fitness/ Includes information on sports supplements including creatine.

NEW The *Palo Alto Medical Center* has several references on sports nutrition at http://www.pamf.org/teen/health/nutrition/sportnutrition.html Also includes information on supplements.

NEW The *Iowa State University Extension* Sport Nutrition website, "Eat to Compete" (http://www.extension.iastate.edu/nutrition/sport/) has been designed to provide up-to-date information on the role of nutrition in physical performance. Many of the recommendations that optimize physical performance for the athlete are appropriate for optimizing overall health as well. The information on this website can be used by the recreational athlete, competitive athlete, coaches, trainers or anyone interested in improving their overall health through nutrition and exercise. The site also includes a "Carb-O-Meter" and an interactive game called "the H2O Race"

NEW – the *Iowa Beef Organization Council* also has a downloadable curriculum on Sports Nutrition available at http://www.iabeef.org/Content/educators.aspx

NEW The USDA information site has a list of links to reliable sources of information on sports nutrition at http://www.nal.usda.gov/fnic/etext/000054.html Includes links to sites with information on nutrition and physical exercise; also on supplements and interactive calculators.

Background Information:

Athletes have greater need for energy, fluid and some nutrients than nonathletes. The drive for peak performance has led to an emphasis on diet and dietary supplements as one way to improve performance.

The *American Dietetic Association* (www.eatright.org/), *Dietitians of Canada* and the *American College of Sports Medicine* state in their position paper on "Nutrition and Athletic Performance" (http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_adap1200_ENU_HTML.htm) that physical activity, athletic performance and recovery from exercise are enhanced by optimal nutrition. The following key points summarize the current energy, nutrient and fluid recommendations for active adults and competitive athletes from the position paper:

- During times of high-intensity training, adequate energy needs to be consumed to maintain body weight, maximize the training effects and maintain health. Low-energy intakes can result in loss of muscle mass, menstrual dysfunction, loss or failure to gain bone density and increased risk of fatigue, injury and illness
- Body weight and composition can affect exercise performance but should not be used as the sole criterion for participation in sports; daily weigh-ins are discouraged. Optimal body-fat levels vary depending upon sex, age and heredity of the athlete, as well as the sport itself.

Learning Activities:

Middle School Level/High School Level

- Ask students to list all of the organized sports they are involved with or are aware of. Ask:
  - Do athletes have different nutritional needs than nonathletes? Why or why not?
  - Does the type of sport the athlete is involved in impact nutritional needs?
- Ask students to write out questions they have about nutrition and athletic performance by writing statements on strip of paper. Ask students to place the strips of paper in a basket. Address these questions after the students have completed the scavenger hunt.
- Complete the web-based *Sport Nutrition Scavenger Hunt* **(Updated)**

  NOTE TO TEACHER: You may want to put this activity on a disk, CD or post on the web for students and create hyperlinks to each of the web pages listed.
- After students have completed the *Sport Nutrition Scavenger Hunt*, draw out the questions that students had about athletes and nutrition. Ask if they are now able to answer the question and discuss responses. Clarify any misinformation
- Complete the activity, *Jason's Training Menu*. Students apply knowledge of *MyPyramid* by assisting in meal planning for a student athlete.
- Research a sports related topic to present information to others in an appropriate information format (brochure, display, fact sheet, PowerPoint,

news release, etc). Present these topics to the class and/or as part of a "Nutrition and the Athlete Forum" (see Extended Learning Activities). Possible topics include:

- the benefits of water versus sports drinks
- the dangers of dehydration and how to prevent it
- creatine and other supplements
- energy bars
- carbohydrate loading
- the vegetarian athlete
- ergogenic products

Extended Learning Activities

- **Locker Room "Pop-Ups"** – Create "pop-ups" with nutrition information related to nutrition and the athlete and place on lockers, bulletin boards and walls in the school and visitor's locker rooms.
- **Nutrition and the Athlete Forum** – Host a forum to discuss nutrition and the athlete at the beginning of the school year for all athletes, parents and coaches. Invite health professionals (doctors, registered dieticians, etc.) from the area to address related topics. Create displays, posters and fact sheets to present to those in attendance.

Academic Connections – NEW

✓ **Mathematics -** Use the following fact sheets to calculate the calorie, protein and carbohydrate needs of athletes:

Calorie Needs Estimation
http://nutrition.arizona.edu/new/files/01Calorie_Need_Estimates.pdf

Protein Needs http://nutrition.arizona.edu/new/files/02Protein_Needs.pdf

Carbohydrate Needs
http://nutrition.arizona.edu/new/files/03Carbohydrate_Needs.pdf

✓ **Physical Education/Health** The *New York Times* has an archive of lesson plans with related news articles. Check out this lesson plans for use in this area:

Foul Ball http://www.nytimes.com/learning/teachers/lessons/20050318friday.html

Educating Youth on the Dangers of Performance-Enhancing Drugs in Sports
In this lesson, students will consider what they already know about performance-enhancing drugs and examine the ideas at the heart of the congressional hearings regarding Major League Baseball and these drugs. They then create public service announcements warning teens against using these drugs, and write response papers about this topic. (March 18, 2005)

Sports Nutrition Scavenger Hunt

Instructions:

Use the Internet links below to learn more about sports nutrition. Each resource link will be used to answer at least one question. Be sure to write your answers on a separate sheet of paper.

Questions:

1. What are five quick facts important to the nutritional well-being of an athlete?
2. What types of food are the best fuel sources for athletes? They should provide what percentage of an athlete's energy requirements? Why?
3. What are dietary supplements? Why should they be avoided in most cases?
4. What are two supplements that may be needed? Why?
5. Do teen athletes need extra amounts of protein from foods or amino acid supplements? What are some risks associated with getting too much protein?
6. What are 8 signs and symptoms of inadequate hydration?
7. Why is water a better beverage for athletes than coffee, tea or soda pop?
8. Does the time of day impact nutrient and calorie intake? Explain your answer.
9. Identify 4 ways that an improper pre-event/pre-competition meal can impact an athlete?
10. What are the six key components of a good pre-event/pre-game meal?

Resources:

Nutrition for the Athlete www.ext.colostate.edu/pubs/foodnut/09362.html

Eat to Compete: What You Should Know about Dietary Supplements
http://www.extension.iastate.edu/nutrition/sport/supplements.html

Eating Before & Between Athletic Events
http://www.aces.edu/pubs/docs/H/HE-0750/HE-0750.pdf

Dehydration and Heat Injury
http://www.rice.edu/~jenky/sports/dehydration.html

Fast Facts About Sports Nutrition
http://www.fitness.gov/fastfacts.htm

Sports and the Winning Connection
http://www.urbanext.uiuc.edu/hsnut/index.html

The "BIG" Question

Look over all of the answers to the questions that you answered on this scavenger hunt. Answer the following question: "What are the most important things for teen athletes to consider when thinking about their nutritional needs?"

Sports Nutrition Scavenger Hunt - Answer Key

Note to teacher: The answers are provided to assist you but it is recommended that you familiarize yourself with each of the websites before assigning this activity.

1. What are five quick facts important to the nutritional well-being of an athlete? ***Quick Facts...***

- *Athletes achieve peak performance by training and eating a variety of foods.*
- *Athletes gain most from the amount of carbohydrates stored in the body.*
- *Fat also provides body fuel; use of fat as fuel depends on the duration of the exercise and the condition of the athlete.*
- *Exercise may increase the athlete's need for protein.*
- *Water is a critical nutrient for athletes. Dehydration can cause muscle cramping and fatigue.*

From: Nutrition for the Athlete www.ext.colostate.edu/pubs/foodnut/09362.html

2. What types of food are the best fuel sources for athletes? They should provide what percentage of an athlete's energy requirements? Why?
   Athletes gain most from the amount of carbohydrates stored in the body. In the early stages of moderate exercise, carbohydrates provide 40 to 50 percent of the energy requirement. Carbohydrates yield more energy per unit of oxygen consumed than fats.

From: Nutrition for the Athlete www.ext.colostate.edu/pubs/foodnut/09362.html

3. What are dietary supplements? Why should they be avoided in most cases?

   Prior to 1994, the term "dietary supplement" referred to products made of one or more of the essential nutrients, such as vitamins, minerals, and protein. Congress passed the Dietary Supplement Health and Education Act (DSHEA) in 1994, which expanded the definition so that dietary supplements now include herbs, or other botanicals (except tobacco), and any dietary substance that can be used to supplement the diet. ***Why?*** *Because of the lack of regulation with dietary supplements, athletes run the risk of consuming a dietary supplement that is contaminated. Steroid contamination, has been documented. An athlete WILL test positive for drug use if they consume a dietary supplement containing banned substances such as anandrolone & testosterone. Some substances that could be in the supplements are banned by the NCAA (list of banned drug classes). Consuming them will jeopardize your eligibility.*

   From: Eat to Compete: What You Should Know about Dietary Supplements
   http://www.extension.iastate.edu/nutrition/sport/supplements.html

4. What are two supplements that may be needed? Why?

Many contain vitamins and minerals to supplement the amounts of these nutrients we get from the foods we eat.

From: Eat to Compete: What You Should Know about Dietary Supplements
http://www.extension.iastate.edu/nutrition/sport/supplements.html

5. Do teen athletes need extra amounts of protein from foods or amino acid supplements? What are some risks associated with getting too much protein?
   Exercise may increase an athlete's need for protein, depending on the type and frequency of exercise. Extra protein is stored as fat. In the fully grown athlete, it is training that builds muscle, not protein per se. The ADA reports that a protein intake of 10 to 12 percent of total calories is sufficient. Most authorities recommend that athletes eat 1 to 1.5 grams protein per kg of body weight per day. (A kilogram equals 2.2 pounds.)

   Excess protein can deprive the athlete of more efficient fuel and can lead to dehydration. High-protein diets increase the water requirement necessary to eliminate the nitrogen through the urine. Also, an increase in metabolic rate can occur and, therefore, increased oxygen consumption. Protein supplements are unnecessary and not recommended.
   From: Nutrition for the Athlete www.ext.colostate.edu/pubs/foodnut/09362.html

6. What are 8 signs and symptoms of inadequate hydration?

   - *Cramps- muscle spasms in legs, arms and abdomen*
   - *Weakness*
   - *Headache*
   - *Dizziness*
   - *Low blood pressure*
   - *Elevated pulse*
   - *Temperature elevation*
   - *heatstroke*

   From: Dehydration and Heat Injury
   http://www.rice.edu/~jenky/sports/dehydration.html

7. Why is water a better beverage for athletes than coffee, tea or soda pop?
   Consumption of carbonated beverages should be minimized in the pre-event time because these types of beverages may result in excessive belching and stomach discomfort before exercise. Beverages containing caffeine such as coffee, tea or colas should be avoided because caffeine has a diuretic action that can increase urine output and possibly contribute to dehydration.

   From: Eating Before & Between Athletic Events
   http://www.aces.edu/pubs/docs/H/HE-0750/HE-0750.pdf

8. Does the time of day impact nutrient and calorie intake? Explain your answer.

   All food should be cleared from the gastrointestinal tract prior to exercise so pre-event meals should be consumed 2-4 hours before exercise so that there is ample time for food to be digested and absorbed. This can actually hurt performance.

   If the meal is consumer longer than 4 hours before the event, the athlete may become hungry.

   From: Eating Before & Between Athletic Events
   http://www.aces.edu/pubs/docs/H/HE-0750/HE-0750.pdf

9. Identify 4 ways that an improper pre-event/pre-competition meal can impact an athlete?

   Adverse symptoms of an improper pre-event meal include the following:

   - *Nausea*
   - *Intestinal cramps*
   - *Belching*
   - *Vomiting*
   - *Low blood sugar*
   - *Flatulence (gas)*
   - *Diarrhea*
   - *Dehydration*

From: Eating Before & Between Athletic Events
http://www.aces.edu/pubs/docs/H/HE-0750/HE-0750.pdf

10. What are the six key components of a good pre-event/pre-game meal?

    - *Consumed 2-4 hours before the event*
    - *High in carbohydrate content with small amounts of protein and fat*
    - *Foods that are somewhat bland*
    - *Low in dietary fiber*
    - *Small in size – less than 1,000 calories*
    - *Dilute, non-caffeinated drink*

From: Eating Before & Between Athletic Events
http://www.aces.edu/pubs/docs/H/HE-0750/HE-0750.pdf

Jason's Training Menu

Name

Directions: Read the following scenario and using the resources listed, assist Jason in planning an appropriate training menu by making changes in this meal plan. Underline the item you would change and list an appropriate alternative. Be sure to include your reason for making the change.

Resources: *Your Training Table Guide* at www.urbanext.uiuc.edu/hsnut/hsath3a.html
Foods to Avoid at www.urbanext.uiuc.edu/hsnut/hsath2e.html

Breakfast **Reason for Change**
2 Carmel Rolls

1 cup Coffee

3/4 cup Orange Juice

Lunch
1 4-oz. Hamburger on a Whole Wheat Bun

2 cups Lettuce Salad with 3 tbs. Thousand Island Dressing

1/4 Cantaloupe

8-oz. Lowfat Milk

Dinner
6-oz. Fried Chicken

2 cups Rice

1 cup Broccoli

1 Baked Apple

20 oz. Diet Soda

Snacks
Candy Bar

Chocolate Milkshake

Santa Fe Pizza

(A vegetarian recipe from the American Dietetic Association)

1 12-inch pre-baked pizza crust
2 tablespoons yellow cornmeal
2 meat-free, soy-based burgers
1/2 teaspoon cumin
1/2 cup taco sauce
3 tablespoons fresh cilantro
1/2 cup canned black beans, rinsed and drained
1/4 cup diced green chili peppers
6 ounces shredded Mozzarella cheese

Spray pizza pan with nonstick cooking spray, then dust the pan with cornmeal. Fry soy-based burgers in a nonstick skillet over low heat, chopping the burgers into bits with a spatula. Stir in cumin. Spread taco sauce over pizza crust and sprinkle with warm burger and remaining toppings. Bake at 400 degrees F for 15 minutes or until cheese is bubbly and begins to brown. Cut into 8 slices.

Calories per slice:	300
Protein:	15 grams
Fat:	5 grams
Carbohydrate:	47 grams
Sodium:	590 milligrams
Cholesterol:	12 milligrams

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Prenatal Nutrition

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.2 Examine the relationship of nutrition and wellness to individual and family health throughout the life span

LESSON COMPETENCIES:

- Discuss the nutritional needs of pregnancy
- Plan meals appropriate for meeting the nutritional needs of pregnancy

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students recognize that food choices now impact their future health, including prenatal health.
- Students choose foods following the guidelines of *MyPyramid*.

Resources Needed:

- Copies of the article "Eat Wisely for You and Your Baby" (see reference list)
- Copies of the "Food Guide Pyramid for Pregnant Women and/or Pregnant Teens"
- Copies of the current Dietary Reference Intakes (DRI) and Recommended Dietary Allowances (RDA) for each student (see reference section)
- White paper plates

References for teachers and students:

NEW The U.S. *Department of Health and Human Services* (www.hhs.gov/) webpage has up-to-date (2006) information on the nutritional needs and exercise needs of pregnant women at their website http://www.4women.gov/pregnancy/pregnancy/eat.cfm The site includes a list of food dos and don'ts for pregnant women and the guidelines for changes in diet during pregnancy based on recommendations from the *American Dietetic Association.*

NEW The *American Dietetic Association* (www.eatright.org/) has a position paper on nutrition during pregnancy which could serve as a good background reference for teachers available at http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_adar1002b_ENU_HTML.htm

Two fact sheets, "Nutritional Needs During Pregnancy" (http://ohioline.osu.edu/mob-fact/0001.html), "Staying Healthy During Pregnancy" (http://ohioline.osu.edu/mob-fact/0002.html) and other articles on nutrition during pregnancy are available at the *Ohio State University Cooperative Extension Service*

website at http://ohioline.osu.edu Click on "Food" and then search under "General Nutrition". Most have been updated to include *MyPyramid*.

Another fact sheet, *Eat Wisely for You and Your Baby*, is available from the *Iowa State University Cooperative Extension Service* (reference to Food Guide Pyramid however) at http://www.extension.iastate.edu/Publications/PM813.pdf.

The *March of Dimes* (www.marchofdimes.com) website has information on nutrition and birth defects especially on folic acid. The website is http://www.marchofdimes.com/159.asp.

A reprint of an article from the *FDA Consumer*, "How Folate Can Help Prevent Birth Defects" is available at the site www.fda.gov/fdac/features/796_fol.html.

The Centers for Disease Control and Prevention (CDC) has an article, "Folic Acid Now: Before You Know You're Pregnant" and other resources on folic acid and birth defects which can be accessed at www.cdc.gov/ncbddd/fact/folnow.htm.

Two booklets, *A Good Start, Nutrition During Pregnancy* and *Eating for Two-Nutrition Needs During Pregnancy* can be downloaded at http://www.beefnutrition.org/matedownloadsforpatientsandclients.aspx.

Copies of the RDI and RDA tables are accessible at the *Food and Nutrition Information Center* at www.nal.usda.gov/fnic/etext/000105.html. Click on "Table of 1989 RDS and 1997-98 DRI" for a comparison of previous requirements.

NEW The *KidsHealth* website in the section for parents also has a good article, "Eating During Pregnancy" (http://www.kidshealth.org/parent/pregnancy_newborn/pregnancy/eating_pregnancy.html), reviewed in 2006; this and other related articles are available at http://www.kidshealth.org/parent/pregnancy_newborn/pregnancy/eating_pregnancy.html.

Background Information

Pregnancy is a nutritionally demanding time. A woman's body needs enough nutrients to support the growth of the baby as well as personal nutritional needs. Pregnant women need more calories and essential nutrients than other women. If the nourishment to the baby is inadequate, the baby may not develop normally.

Nutritional status impacts an individual's ability to grow, to learn, to work, and to fight disease. Research studies have found that children born to mothers with inadequate diets are more likely to be born premature and underweight, to die within the first year of life and to have physical defects (Berk, L. 1996. Infants and Children Prenatal Through Middle Childhood, Second Edition, Allyn & Bacon, Boston, MA)

According to a report from The March of Dimes Task Force on Nutrition and Optimal Development, *Nutrition Today Matters Tomorrow,* women's nutritional status before conception may contribute to positive or negative outcomes during pregnancy and in the infant. For example,

- Women with low folate status in the periconceptual period are at significantly elevated risk of giving birth to a child with spina bifida or a related neurological defect.
- Women who are underweight before pregnancy particularly immature adolescents have a higher risk of giving birth to a low birth weight infant.

- Women who are obese before conception may experience complications during pregnancy and childbirth. In addition, they are at higher risk of having babies with congenital malformations.

According to the report, an adequate amount of vitamins and minerals is particularly important for adolescent girls in preparation for motherhood. Problems of deficiencies are best documented for 7 micronutrients: iron, iodine, vitamin A, zinc, folate, vitamin D and calcium. These vitamins and minerals enable us to use the energy provided by foods; build, maintain and repair cell and tissue structures; and perform critical biochemical transformations. For a full copy of the report, go to the *March of Dimes* website at www.marchofdimes.com; click on "professionals and researchers", click on "medical references" and then click on "nutrition".

Learning Activities:

High School Level

- Ask students to complete the pretest on *Nutrition and a Healthy Baby*
- Students read the article "Eat Wisely for You and Your Baby". (See Resource List) After reading the article, ask students to look over the pretest again and make any changes. Discuss the information in the article with students.
  - Why is it so important for women to eat right before and during pregnancy?
  - Why is good nutrition important even before pregnancy?
  - Why do pregnant women have increased nutritional needs for their own bodies as well as for the needs of the baby?
  - What factors influence the amount of weight a woman should gain during pregnancy?
  - Why should foods such as cookies, cakes, doughnuts, chips, soft drinks and pie be avoided?
  - Why would a doctor be concerned if a pregnant woman had gained less than 10 pounds during pregnancy?
  - What things need to be considered when taking prenatal vitamins?
  - What are some things that help "morning sickness"?
  - Why should smoking, drinking and taking drugs be avoided?
  - What about caffeine and aspartame?
- Working in groups of two and using *MyPyramid* (www.mypyramid.gov/) and considering increased nutritional needs during pregnancy as well as the Dietary Guidelines (http://www.health.gov/dietaryguidelines/), give each team a paper plate. Ask students to plan a daily meal plan for a pregnant woman and/ or a pregnant teen and write it on the paper plate.
- Upon completion of the menu, ask students to see if their choices will meet the DRI/RDA for key nutrients for a pregnant woman using the DRI/RDA tables. Use the *Measuring Up Your Menu Plan* handout.

Nutrition and a Healthy baby

Name _____

For each question, select the answer that you think is correct.

_____ 1. When is it important for a pregnant woman to get prenatal care?
   a. by the fourth month
   b. by the fifth month
   c. as early as possible
   d. when she thinks she needs it

_____ 2. The best advice on what to eat while pregnant is:
   a. eat whatever you like
   b. eat for two
   c. eat a variety of foods
   d. eat what you crave

_____ 3. Foods from the milk group are a good source of:
   a. fiber
   b. iron
   c. Vitamin C
   d. calcium

_____ 4. Small babies are:
   a. healthy babies
   b. babies at risk
   c. easier to deliver and care for
   d. okay, just small

_____ 5. The appropriate weight gain for a healthy woman is about:
   a. 10-15 pounds
   b. 15-20 pounds
   c. 25-35 pounds
   d. depends on weight of mother

_____ 6. During pregnancy, weight gain should occur:
   a. only in the last few months
   b. gradually all through the pregnancy
   c. mostly in the middle of the pregnancy
   d. depends on current weight of woman

_____ 7. As long as pregnant women take a prenatal vitamin, they don't need to worry about what I eat:

a. true
b. false

_____ 8. Smoking mothers have a greater chance of miscarriage or stillbirth

a. true
b. false

_____ 9. Using alcohol and drugs in moderation is safe while pregnant.

a. true
b. false

_____ 10. Good nutrition is important even before you are pregnant.

a. true
b. false

Adapted from the *Have a Healthy Baby Survey Two*, Iowa State University Cooperative Extension Service, September, 1996.

Nutrition and a Healthy baby Answer Key

Name _____

For each question, select the answer that you think is correct.

____c____ 1. When is it important for a pregnant woman to get prenatal care?
- e. by the fourth month
- f. by the fifth month
- g. as early as possible
- h. when she thinks she needs it

____c____ 2. The best advice on what to eat while pregnant is:
- e. eat whatever you like
- f. eat for two
- g. eat a variety of foods
- h. eat what you crave

____d____ 3. Foods from the milk group are a good source of:
- e. fiber
- f. iron
- g. Vitamin C
- h. calcium

____b____ 4. Small babies are:
- e. healthy babies
- f. babies at risk
- g. easier to deliver and care for
- h. okay, just small

___c_____ 5. The appropriate weight gain for a healthy woman is:
- e. 10-15 pounds
- f. 15-20 pounds
- g. 25-35 pounds
- h. Depends on weight of mother (NOTE to teacher – this should be discussed and could be considered correct as well; see "Eating for Two: Healthy Weight Gain During Pregnancy" (http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_4201_ENU_HTML.htm).

____d____ 6. During pregnancy, weight gain should occur:
- e. only in the last few months
- f. gradually all through the pregnancy
- g. mostly in the middle of the pregnancy
- h. depends on pre-pregnancy weight of woman

____b____ 7. As long as pregnant women take a prenatal vitamin, they don't need to worry about what I eat:

c. true
d. false

____a____ 8. Smoking mothers have a greater chance of miscarriage or stillbirth

c. true
d. false

____b____ 9. Using alcohol and drugs in moderation is safe while pregnant.

c. true
d. false

____a____ 10. Good nutrition is important even before you are pregnant.

c. true
d. false

Adapted from the *Have a Healthy Baby Survey Two*, Iowa State University Cooperative Extension Service, September, 1996.

Measuring Up Your Menu Plan

Name_____

Directions: Using the menu plan which you and your partner developed for a pregnant woman or teen and the DRI/RDA tables, complete the table below to see how your menu plan "measures up".

Food	Amount	Calories	Protein(g)	Folate (ug DEF)	Vit. C (mg)	Iron (mg)	Calcium (mg)

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Vegetarian Diets

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.2 Examine the relationship of nutrition and wellness to individual and family health, throughout the life span.
6.2.3. Assess the impact of food and diet fads, eating diets, and eating disorders on wellness

LESSON COMPETENCIES:

- Define vegetarian diets
- Develop vegetarian meal plans that meet daily nutrient requirements
- Discuss the benefits and nutritional considerations important when choosing a vegetarian lifestyle

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students identify the special nutritional considerations of a vegetarian lifestyle.
- Students choosing this lifestyle plan vegetarian meals that meet the nutrition requirements for the adolescent stage of the life span.

Resources Needed:

- Food labels or packages of foods with nutrition labels that contain vitamin and calcium supplements; packages of foods high in soy or other forms of vegetable protein, tofu, soy or rice milk, if available.
- Copies of "*MyPyramid* guidelines for Vegetarian Meal Planning" http://www.MyPyramid.gov/tips_resources/vegetarian_diets.html.
- Copies of handouts for all students.
- Dietary Tables of the nutrient value of common foods; a nutrient database is also available on the web from the United States Dept. of Ag at www.nal.usda.gov/fnic/cgi-bin/nut_search.pl.

References for teachers and students:

ADA Position: Vegetarian Diets was updated in 2003 and is available at http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_933_ENU_HTML.htm

The *Vegetarian Resource Group* has vegetarian and vegan recipes, vegetarian nutrition information, brochures and other services at www.vrg.org.

Keeping Teenage Vegetarians Healthy and In the Know is an article published in Contemporary Pediatrics, October, 2001. This is an excellent article with sound advice from health professionals. The article would need to be accessed at a library.

NEW The *Palo Alto Medical Center* has several references on teens and vegetarianism at http://www.pamf.org/teen/health/nutrition/veggieteens.html#.

NEW *KidsHealth* (http://kidshealth.org/teen) website has resources for teens on this topic including an article, "Becoming a Vegetarian" (http://kidshealth.org/teen/food_fitness/nutrition/vegetarian.html). The site also has several vegetarian recipes.

NEW A chart outlining the nutritional needs for vegetarian teens can be found at http://www.kidsnutrition.org/consumer/nyc/volW-00e.htm. This tool can help teens to see what foods they need to get everyday to meet their nutritional needs on a vegetarian diet.

NEW The Nutrition.gov website has a list of references on this topic at http://www.nutrition.gov/index.php?term=vegetarian+diets&mode=fulltext&x=16&y=4 including the "*MyPyramid* recommendations for vegetarians" (http://www.MyPyramid.gov/tips_resources/vegetarian_diets.html).

NEW *MedLine Plus* website has a page dedicated to resources and articles on the topic of "vegetarianism" (http://www.nlm.nih.gov/medlineplus/vegetariandiet.html).

Background Information

Vegetarianism is the practice of eating a diet that consists entirely or largely of plant sources of food. Fruits, vegetables, grains, nuts and seeds are the mainstays of a vegetarian diet.

There are several types of vegetarians including:

- Vegans – They eat no foods from animal sources; diet is limited strictly to foods from plant sources
- Lacto-vegetarians – eat animal protein in the form of milk, cheese and dairy products. They do not eat meat, fish, poultry or eggs.
- Lacto-ovo vegetarians – They eat animal protein in the form of dairy products and eggs. However, they do not eat meats, fish or poultry.
- Semi vegetarians or partial vegetarians – They eat dairy products, eggs, poultry and seafood. They eat little or no read meat – beef, veal, pork and lamb
- Pesco vegetarians – They eat fish but no other meat
- Pollo vegetarians – They eat poultry but no other meat.

Veggie Facts from the *American Dietetic Association* (www.eatright.org/) (2003 - updated):

- Approximately 4.8 million Americans (2.5% of the population) in 2000 followed a vegetarian diet.
- Aging baby boomers are taking a proactive approach to their health by eating more meatless meals; according to a 2002 survey, 20-25% of Americans report that they eat 4 or more meatless meals a week.
- Health and taste are the top reasons consumers are eating more meat-free meals

There are many reasons why individuals or families may follow a vegetarian diet:

- Religious reasons (Seventh Day Adventists follow a vegetarian diet)
- Health concerns
- Concern for animals
- Concern for the environment
- Economic

A vegetarian diet may help to reduce the risk of developing medical conditions such as obesity, heart disease, high blood pressure, and diabetes.

Several research studies point to the health benefits of adding meatless meals to U.S. eating patterns. One of the largest studies to date showed that if participants' diets were high in animal protein and contained fewer foods of vegetable origin, there was a higher risk for heart disease and some cancers. In another study, researchers concluded that substituting some soy protein for animal protein can significantly lower serum cholesterol and LDL-cholesterol levels. (*"Meat-Free" Goes Mainstream,* an *American Dietetic Association* fact sheet, no longer available)

Vegetarian diets have been linked to anorexia nervosa in adolescents. (Nutritional Deficits: Potential Problems from *Keeping Teenage Vegetarians Healthy and In the Know,* see reference list)

Vegetarian Diets and Nutrient Intake

Tables indicating the Dietary Reference Intakes for all nutrients can be found at this link: http://dietary-supplements.info.nih.gov/Health_Information/Dietary_Reference_Intakes.aspx. Another source of information about each nutrient and the tables with recommended amounts can be found at the *Linus Pauling Institute* at *Oregon State University* at the following link: http://lpi.oregonstate.edu/infocenter/contentnuts.html.

Protein – The RDA for protein is 46 g for a female adolescent (14-18 years old) and 52 g for a male adolescent (14-18 years old). These values are easily achieved by most teen vegetarians. Lacto-ovo vegetarians consume eggs, milk and other dairy products that are high in protein. Vegans obtain protein primarily from legumes, whole grains and nuts. A variety of sources is necessary to ensure that the diet has adequate amounts of all essential amino acids.

Calcium – 40-60% of peak bone mass is acquired during adolescence (Golden, et al.). Therefore it is essential that adequate amounts of calcium be a part of a teenager's diet. Dietary Reference Intake for calcium is 1,300 mg for adolescents. For vegans, achieving the AI for calcium requires more knowledge and effort because unsupplemented vegetable sources of calcium tend to have lower amounts of calcium per serving than dairy products do. Vegan teens should not only consume calcium-rich vegetables but also use calcium-supplemented products such as calcium-supplemented soy and rice beverages, orange juice, breakfast cereals and waffles. Lacto-ovo vegetarians should consume calcium-rich vegetables and dairy products.

Vitamin D – Unfortified and vegetable-based foods are trivial sources of vitamin D. Teen vegans should either take a Vitamin D supplement containing 5 mcg of Vitamin D or ensure adequate intake by consuming fortified foods.

Vitamin B12 - A lacto-ovo vegetarian diet provides a reliable supply of B12 but a vegan diet does not. The RDA for Vitamin B12 for adolescent males and females age 14 and older is 2.4 micrograms a day and 1.8 mcg/day for 13 and under. Adolescent vegans

must get the RDA through a vitamin supplement or supplemented foods such as soy beverages, cereal, and waffles.

Learning Activities:

High School Level

- Discuss the definition of vegetarianism and the different types of vegetarians. Share sample menus for each type of vegetarian diet. Use the overhead master, *Vegetarian Vocabulary,* to present the terms to students. This could also be copied and used as a study guide/advanced organizer for students.
- Discuss reasons why people may choose a vegetarian lifestyle. Potential health benefits of a vegetarian diet may be included in the discussion.
- Compare the "*MyPyramid* for Vegetarian Meal Planning" (http://www.MyPyramid.gov/tips_resources/vegetarian_diets.html) to other *MyPyramid* (www.MyPyramid.gov) recommendations for teens who are not vegetarians. Discuss differences and dietary concerns for vegetarians.
- Review the recipe for *Santa Fe Pizza*; ask students to plan a complete the *Vegetarian Menu Plan* for one meal using this dish as the entrée. Complete the day's menu with breakfast, dinner and snack selections. Students should use the "*MyPyramid* for Vegetarian Meal Planning" (http://www.MyPyramid.gov/tips_resources/vegetarian_diets.html) – menu should meet the requirements of the Food Guide. Optional: ask students to determine the nutrition information for one serving of the *Santa Fe Pizza*
- Working in groups of two, ask students to complete the *Vital Nutrients for Vegetarians* assignment. Be prepared to assist students with food amounts to use for some of the food items. When students have completed the assignment, discuss the following questions:
  1. Could you follow a strict vegan diet on a daily basis? Why or why not? What about a lacto-ovo vegetarian diet or a lacto vegetarian diet?
  2. Why does meal planning for a vegetarian diet take special consideration?
  3. Do you think most teens would take the time to make sure they are meeting the guidelines of *MyPyramid* whether or not they are vegetarian? Why or why not?

Extended Activities:

- **Vegetarian Food Fest** – Students choose and prepare vegetarian recipes. Students sample the final products. Students provide nutrition information for one serving of the recipes prepared. Allow others in the school to sample the results.

Vegetarianism

Types of Vegetarians

- Vegans
- Lacto-ovo vegetarians
- Lacto vegetarians
- Semi-vegetarians
- Pesco vegetarians
- Pollo vegetarians

Santa Fe Pizza

(A vegetarian recipe from the American Dietetic Association)

1 12-inch pre-baked pizza crust
2 tablespoons yellow cornmeal
2 meat-free, soy-based burgers
1/2 teaspoon cumin
1/2 cup taco sauce
3 tablespoons fresh cilantro
1/2 cup canned black beans, rinsed and drained
1/4 cup diced green chili peppers
6 ounces shredded Mozzarella cheese

Spray pizza pan with nonstick cooking spray, then dust the pan with cornmeal. Fry soy-based burgers in a nonstick skillet over low heat, chopping the burgers into bits with a spatula. Stir in cumin. Spread taco sauce over pizza crust and sprinkle with warm burger and remaining toppings. Bake at 400 degrees F. for 15 minutes or until cheese is bubbly and begins to brown. Cut into 8 slices.

Calories per slice:	300
Protein:	15 grams
Fat:	5 grams
Carbohydrate:	47 grams
Sodium:	590 milligrams
Cholesterol:	12 milligrams

Vegetarian Menu Plan

Name(s) _____

Directions: Plan a one day vegetarian menu plan following the recommendations of the "*MyPyramid* Recommendations for Vegetarian Meal Planning" (http://www.MyPyramid.gov/tips_resources/vegetarian_diets.html). The entrée for the lunch menu has already been selected for you; the ingredients for this entrée are available for you to review.

BREAKFAST

LUNCH

Santa Fe Pizza

DINNER

SNACKS

Vital Nutrients for Vegetarians

Name(s) _____

Directions: Your friend Amanda, 17 has decided to follow a vegetarian lifestyle. You are concerned about the nutritional quality of the foods that she eats. Listed below is a one-day sample menu for Amanda. It is your task to see if her menu meets the recommendations of "*MyPyramid* for Vegetarians" (http://www.MyPyramid.gov/tips_resources/vegetarian_diets.html) and to see if she is getting the Dietary Recommended Intake (DRI) for each of the 6 nutrients listed. Place each food and serving size in a blank *MyPyramid*. Complete the chart on nutrient intake to see if Amanda's menu is nutritionally adequate.

Amanda's Menu

Breakfast

1 cup oatmeal with cinnamon, raisins and ½ cup fortified soy milk
1 slice whole wheat toast with 1 tablespoon peanut butter
½ grapefruit

Lunch

2 bean burritos: black beans in corn tortillas, topped with chopped lettuce, tomatoes and salsa
Carrot sticks

Dinner

Chinese stir fry over brown rice: tofu chunks, broccoli, pea pods, water chestnuts and Chinese cabbage
Baked apple

Snack

Banana soymilk shake

Nutrient Intake Chart

Food Item	Serving Size	Vit B12 (mg)	Vit D (mg)	Calcium (mg)	Protein (g)	Iron (mg)	Zinc (mg)
Oatmeal							
Raisins							
Soymilk							
Whole Wheat Bread							
Peanut Butter							
Grapefruit							
Black beans							
Corn Tortillas							
Lettuce							
Tomatoes							
Salsa							
Carrot Sticks							
Brown Rice							
Tofu Chunks							
Broccoli							
Pea Pods							
Water Chestnuts							
Chinese Cabbage							
Apple							
Banana							
Soy milk							
Totals	*******						

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Eating Disorders

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.3 Assess the impact of food and fad diets, eating habits, and eating disorders on wellness

LESSON COMPETENCIES:

- Define eating disorders
- Identify the warning signs of eating disorders
- Demonstrate strategies for communicating with those suffering from an eating disorder
- Explore the impact of eating disorders on health

Anticipated Behavioral Outcomes:

- Students choose foods from *MyPyramid* as a part of healthy weight management.
- Students recognize the warning signs eating disorders and take action when they suspect a peer has an eating disorder.

Resources Needed:

- Copies of all handouts for students
- Copy of transparency master
- Internet Access for all students

References for teachers and students:

A wealth of information related to eating disorders and body image is available at the following website: http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=337

Another excellent website with information on eating disorders and treatment is ANRED*: Anorexia Nervosa and Related Eating Disorders*, *Inc.* at www.anred.com

An *Eating Disorders Awareness* Website is an excellent site developed by adolescents for adolescents. It has a wealth of well-researched and documented information on body image, healthy eating and eating disorders. It is available at http://library.thinkquest.org/27755/.

The *Something Fishy Website on Eating Disorders* at www.something-fishy.org provides information on eating disorders to support individuals and their families.

A lesson plan, "Dying to Be Thin", that corresponds with a *New York Times* article on bone damage and anorexia can be found at the following website: www.nytimes.com/learning/teachers/lessons/20001121tuesday.html

You can view several segments of a Public Broadcasting System series on eating disorders called *Dying to Be Thin* at www.pbs.org/wgbh/nova/thin This site also includes

lesson ideas to accompany the video segments. You must have either *Quick Time* or *Real Player* software to view these videos.

A booklet on Eating Disorders (2001) is available from the *National Institute of Health*. It is available online at http://www.nimh.nih.gov/publicat/eatingdisorders.cfm

The *Dairy Council of California* (www.dairycouncilofca.org/) also has a lesson plan, handouts and resources on body image at www.dairycouncilofca.org/edu/edu_prog_body2.htm

A WebQuest on Eating Disorders developed by a family and consumer sciences teacher can be found at http://coe.west.asu.edu/students/jklein/eatingdisorderwq.html. Be sure to check all Internet links before using.

NEW Download a copy of the *BodyWise Handbook*. The BodyWise packet is customized for school personnel and contains fact sheets designed for teachers, nurses, coaches, and other educators, as well as resource lists. The fact sheets include suggestions for integrating eating disorders prevention into existing curricula and for initiating school-wide activities to promote prevention of unhealthy eating and preoccupation with body weight. http://www.4women.gov/bodyimage/kids/bodywise/. The site also has a download called "Eating Disorders and Obesity: How Are They Related?"

NEW The *National Institute of Mental Health* (http://www.nimh.nih.gov/health/publications/eating-disorders/summary.shtml) website has information on eating disorders, especially regarding the area of treatment.

NEW *Medline Plus*, a service of the *National Library of Medicine* and the *National Institutes of Health*, website has links to several articles and resources on the topic of eating disorders. http://www.nlm.nih.gov/medlineplus/eatingdisorders.html

NEW There are several WebQuests available online on the topic of eating disorders. One that is well done and linked to standards can be accessed at http://jabiddle.iweb.bsu.edu/old_portfolio/Portfolio/Technology/edwebquest/intro.html. Be sure to contact the author before using.

NEW **NOTE TO TEACHER**: Be sure to use caution when asking allowing teens to conduct research on this topic using the World Wide Web.

Web sites that promote anorexia and bulimia are used by a significant number of adolescents with eating disorders, according to a study from Stanford and Lucile Packard Children's Hospital (LPCH) researchers, presented at the Pediatrics Academic Societies 2005 annual meeting.

Teenagers use the sites to chat about weight loss and find tips on how to hide their food-avoidance behavior from friends and family, the study found. It also found that teenagers who use the sites spend less time on homework and more time in the hospital than peers who do not use these sites. (http://www.contemporarypediatrics.com/contpeds/article/articleDetail.jsp?id=161971)

Background Information:

Definitions:

Eating Disorder – a psychiatric illness with specific criteria

Disordered Eating – refers to troublesome eating behaviors, such as restrictive dieting, bingeing or purging, which occur less frequently or are less severe than those required to meet the full criteria diagnosis for an eating disorder.

According to the *American Psychiatric Association*, a person diagnosed as bulimic or anorectic must have all of the disorder's specific symptoms:

Anorexia Nervosa

- refusal to maintain weight that's over the lowest weight considered normal for age and height
- intense fear of gaining weight or becoming fat, even though underweight
- distorted body image
- in women, three consecutive missed menstrual periods without pregnancy

Bulimia Nervosa

- recurrent episodes of binge eating (minimum average of 2 binge-eating episodes a week for at least three months)
- a feeling of lack of control over eating during the binges
- regular use of one or more of the following to prevent weight gain: self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise
- persistent over-concern with body shape and weight

Eating is influenced by many factors, including appetite, food availability, family, peer and cultural practices and attempts at voluntary control. Eating disorders involve serious disturbances in eating behavior, such as extreme and unhealthy reduction of food intake or sever overeating, as well as feelings of distress or extreme concern about body shape or weight. (National Institute of Health)

Eating disorders are **not** due to a failure of will or behavior, they are treatable medical illnesses in which certain maladaptive patterns of eating take on a will of their own. (National Institute of Health)

According to the *American Dietetic Association* (1998), more than 5 million Americans suffer from eating disorders. Five percent of females and 1% of males have anorexia nervosa, bulimia nervosa or binge eating disorder. It is estimated that 85% of eating disorders have their onset during the adolescence.

Learning Activities:

Middle School Level

- KWL Chart **–** Ask students to complete a KWL chart on Eating Disorder to determine what students already know what misinformation is found on their charts and what they would like to know about eating disorders. Discuss the charts with students after they have been completed. Students should complete only the "K" and "W" columns at the beginning of this area of study. After completing all class activities, ask the students to complete the "L" column.
- Complete *The Eating Disorders Subject Sampler*

  NOTE TO TEACHER: You may want to divide the class into groups with each group completing the questions for one issue. Each group could then report back to the class with their answers. Discuss findings with students.
- Invite a health professional as a guest speaker to discuss eating disorders and answer students' questions.

High School Level

- Using the overhead transparency, *Truth or Myth,* ask students to identify each statement about eating disorders as a truth or myth. Discuss misconceptions related to eating disorders by providing information to dispute the myths. This information is found on the answer key for this activity.
- Students complete a research project on an eating disorder topic of their choice; guidelines for this project are included. Students present their reports as illustrated talks following guidelines for the FCCLA Illustrated Talk STAR event.
- Ask students to complete the assignment, *A Friend in Need* to assist them in communicating with friends/peers who may suffer from an eating disorder
- The WebQuest on Eating Disorders (see references) could be used as an alternative to the above activities.

Extended Activities:

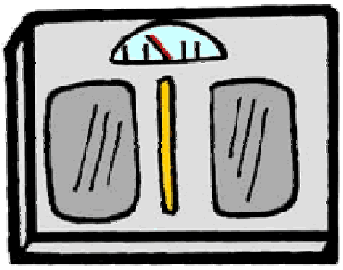
*** Debate the topic "Should Insurance Companies Cover the Cost of Treatment for Eating Disorders"** OR **Develop a position paper/op ed article** presenting a case as to why insurance companies should fund treatment for eating disorders. Publish your papers in the school and/or local community newspaper.

- **Eating Healthy Awareness Day** – Host a school-wide event with speakers, booths and activities on healthy weight management, eating disorders, nutritious snacking, body image and healthy weight loss.

Academic Connections - NEW

- ✓ **Economics -** Costs to Society **–** Research the economic costs of treating eating disorders; consider costs of treatments, lost time at work, etc.
- ✓ **English/Communication –** As a part of a persuasive writing lesson, ask students to write letters to the editor addressing the question of - Should insurance companies cover the cost of treatment of eating disorders?

Subject Sampler: Eating Disorders



Introduction

The following links come from all over the World Wide Web and include information about a variety of issues related to Eating Disorders. You may complete the following Internet activities alone or working in a group as directed by your teacher. You may complete all or only some of the activities related to your goals related for the study of Eating Disorders.

The purpose is to give you a sampling of some of the issues related to Eating Disorders. Each of the activities asks you to explore Eating Disorders. Good luck and see what you learn about eating disorders!

Activities

Defining Eating Disorders and Warning Signs

Anorexia Nervosa and Related Eating Disorders, Inc. www.anred.com

1. What is an eating disorder?
2. What are the 3 most common eating disorders and what are the characteristics of each?
3. The warning signs for these eating disorders fall under several categories: food behaviors, appearance and body image behaviors, exercise behaviors, thoughts and beliefs, feelings and social behaviors. Identify 3 warning signs in each category.

Health Risks Related to Eating Disorders

National Eating Disorders Organization
www.nationaleatingdisorders.org/p.asp?WebPage_ID=294

4. What are the health risks associated with anorexia?
5. What are the health risks associated with bulimia?
6. What are the health risks associated with binge eating disorder?

Treatment of Eating Disorders

Something Fishy Website on Eating Disorders www.something-fishy.org

7. Identify 5 health professionals who might be involved in the treatment of an eating disorder and list what areas they are trained in.
8. When is hospital-based care necessary?

"TRUTH OR MYTH?"

1. **The causes of eating disorders are complex and involve social, psychological and genetic factors.**
2. **Eating disorders are most common among teens and young adults.**
3. **The three most common eating disorders are anorexia nervosa, bulimia nervosa and binge eating.**
4. **People with anorexia or bulimia may over exercise.**
5. **There are no cases of males with eating disorders.**
6. **Treatments of eating disorders involve several different health professionals.**
7. **Eating disorders can result in serious health consequences including death.**
8. **Some athletes are susceptible to eating disorders due to their training regimens.**
9. **Men are more likely than women to seek help for eating disorders.**
10. **The pressures of a culture that promotes "thinness" and the "perfect body" contribute to causing eating disorders.**

"TRUTH OR MYTH?" ANSWER KEY

1. The causes of eating disorders are complex and involve social, psychological and genetic factors.
   True: Eating disorders are complex conditions that arise from a combination of long-standing behavioral, emotional, psychological, interpersonal and social factors. These include but are not limited to low self esteem, feelings of inadequacy, troubled family relationships, history of abuse, cultural pressures, biological causes and others. ("Causes of Eating Disorders" Fact sheet from the *National Eating Disorders Association,* http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=337

2. Eating disorders are most common among teens and young adults.
   True: Nine out of every 10 cases are found among girls and young women. ("Eating Disorders Information for Middle School Personnel" from the *Office on Women's Health*, 2000)

3. The three most common eating disorders are anorexia nervosa, bulimia nervosa and binge eating.
   True: The term "eating disorders" has come to mean anorexia nervosa, bulimia nervosa, and binge eating. However, there are many lesser known eating disorders such as anorexia athletica (compulsive exercising), night-eating syndrome, Prader-Willi syndrome, Pica and others. (ANRED: *Anorexia Nervosa and Related Eating Disorders, Inc*. www.anred.com)

4. People with anorexia or bulimia may over exercise.
   True: Over exercising is when someone feels driven to exercise as a way to burn calories from food that he or she has just eaten. People with anorexia or bulimia may over exercise. ("Eating Disorders Information Sheet" from the *Office on Women's Health*, 2000)

5. There are no cases of males with eating disorders.
   False: Males account for 5 to 10 percent of bulimia and anorexia cases ("One the Teen Scene: Eating Disorders Require Medical Attention", www.fda.gov). Approximately 10% of eating disordered individuals coming to the attention of health care professionals is male ("Research on Males and Eating Disorders" fact sheet from the *National Eating Disorders Association,* http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=285

6. Treatments of eating disorders involve several different health professionals.
   True: Typically care is coordinated by a licensed health care professional including but not limited to a psychologist, psychiatrist, social worker, nutritionist/dietitian and/or medical doctor. Treatment may include individual, group or family therapy and medical management. Support groups, nutritional counseling and psychiatric medications under careful medical supervision have also proven helpful for some. ("Treatment of eating disorders" fact sheet from the *National Eating Disorders Association*, http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=320&Profile_ID=41139)

7. Eating disorders can result in serious health consequences including death.
   True: If untreated, eating disorders may become chronic and lead to sever health problems, even death. About 1,000 people die of anorexia each year according to the *American Anorexia/Bulimia Association*. Other health consequences include: slowed growth and development, wasting of muscle tissue, drop in blood pressure and pulse rate, body organs shrivel, bone density decreases and symptoms of osteoporosis may occur, and others. (*Nutrition and Fitness*, 2000)

8. Some athletes are susceptible to eating disorders due to the demands of their sport.
   True: Specific population groups who focus on food or thinness such as athletes, models, culinary professionals as well as young people are at risk for developing an eating disorder (*American Dietetic Association's* position paper on eating disorders) Gymnastics, cheerleading, dancing, figure skating, diving, swimming, track, wrestling and equestrian sports exert the most risk due to the weight and appearance demands placed on the athletes. (Position of *Eating Disorders Awareness and Prevention, Inc.* and the *American Anorexia/Bulimia Association*, adapted in 1994)

9. Men are more likely than women to seek help for eating disorders.
   False: Many men deny they have a problem or are too embarrassed to get help. ("Not for Women Only, Men Too Can Fall Victim to Eating Disorders" Article by Felicity Stone, *HealthScoutNews* Reporter, 2001)

10. The pressures of a culture that promotes "thinness" and the "perfect body" contribute to causing eating disorders.
    True: Cultural values that glorify "thinness" and place value on the "perfect body" have been identified as contributing to eating disorders. ("Causes of Eating Disorders" Fact sheet from the *National Eating Disorders Association,* http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=337

Eating Disorders Research Project

Name(s) _____

Directions: Follow the steps below to find out more about a variety of topics related to eating disorders. Be prepared to present an illustrated talk to share the results of your research with your classmates. A scoring rubric for the illustrated talk will be provided by your teacher.

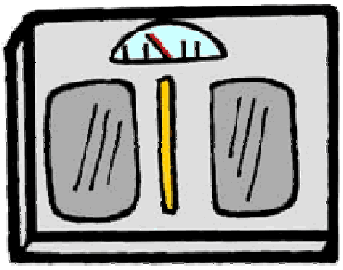
1. Choose one of the following topics for your project:

    a. Males and eating disorders
    b. Treatment of eating disorders
    c. Causes of eating disorders
    d. Health consequences of eating disorders
    e. Athletes and eating disorders (wrestlers, figure skaters, gymnasts, dancers)
    f. Female Athlete Triad
    g. Less well known eating disorders
    h. Helping a friend or family member with an eating disorder
    i. Elderly and eating disorders
    j. Influence of media
    k. Related topic of your choice (must be approved by your teacher)

2. Explore all aspects of the issue you choose for your project. Develop an outline for your report and share it with your teacher for approval before proceeding with your research.

3. Follow the criteria for an illustrated talk provided by your teacher.

4. Create at least one poster to accompany your illustrated talk.



A Friend in Need

Name(s)_____

Directions: Visit the websites below and use as resources by reading the articles and suggestions listed. Then, read the case study and answer the questions. Develop a plan for Shelly to help Megan.

Resources:

- Read the article "I Think My Friend May Have an Eating Disorder. What Should I Do?" http://www.kidshealth.org/teen/exercise/problems/friend_eating_disorder.html
- Visit the following website: http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=294. Click on "Eating Disorders Info" and review the following articles: "How to Help a Friend with Eating and Body Image Issues" *(*http://www.nationaleatingdisorders.org/p.asp?WebPage_ID=286&Profile_ID=41175*)*

Shelly and Megan

Shelly is concerned about her friend Megan. Whenever they are talking, the conversation eventually turns to a discussion of food and weight. Megan seems to know the calorie count and number of fat grams of every food she eats and that Shelly eats.

Shelly and Megan always went to the gym for their workouts three-four times a week. Now, Megan is working out every day and often two times a day. Yet, Megan always talks about how fat she is even though she seems to have lost a lot weight. It is hard to tell because she is usually wearing a baggy sweat suit; she says she is always cold.

Shelly has also noticed a bottle of laxatives in Megan's locker; Megan tried to hide it but Shelly knew what it was. Yesterday, Megan fainted in chemistry class.

1. What do you think is happening with Megan? Identify five things that indicate there is a problem

2. What should Shelly do? Identify three things she could do to help Megan

3. Following the guidelines for what to say to a friend struggling with an eating disorder, write 2 statements that Shelly could use to start a conversation with Megan.

4. On the back of this page, develop a step-by-step plan for Shelly to follow in helping Megan.

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Lesson Grade Levels: 9-12

Concept: Sources of Nutrition Information

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.4 Evaluate sources of food and nutrition information that contribute to wellness

LESSON COMPETENCIES:

- Identify criteria for determining reliable sources of nutrition and health information
- Distinguish between valid sources of nutrition information and nutrition misinformation

Anticipated Behavioral Outcomes:

- Students use reliable sources of nutrition and health information based on sound scientific research.

Resources Needed:

- Copy of *Believe It Or Not* transparency
- Copies of all handouts for students
- News items, brochures, magazine articles, etc. providing nutrition/health information – enough for one for each student
- Internet access

References for teachers and students:

UPDATED - The *American Dietetic Association* (ADA) (www.eatright.org/) position paper, *Food and Nutrition Misinformation* (2006), (http://www.eatright.org/ada/files/MIS.pdf) contains the most recent position of the ADA on nutrition misinformation including how to recognize "junk science". (This is a .pdf file.)

A fact sheet, "Nutrition on the Internet", that discusses guidelines for evaluating nutrition websites, is available from the *Nutrition Information Resource Center* at *Clemson University*; this site also has links to many other federal nutrition sites. http://www.clemson.edu/nutriweb/search_results.php?keywords=Internet&slink=1&sonline=1&slib=1

The *Quackwatch* website has a wide variety of information at www.quackwatch.com . Another web site which offers links to nutrition information is *NutriWatch, Your Guide to Sensible Nutrition* at www.nutriwatch.org

NEW The *Food and Drug Administration* (www.fda.gov) has a webpage to help students working on research projects and reports related to health issues to help them locate and use reliable and valid information. It contains links to many government

agencies that provide health and nutrition information (http://vm.cfsan.fda.gov/~comm/students.html). The site also has links to federal sources of information on nutrition and other health related areas.

NEW *Purdue University* has a series of seven lessons called "Understanding Nutrition Information" (http://web.ics.purdue.edu/~eversb/understanding/index.html). The lessons are interactive with video clips of nutrition claims and ads.

NEW – The *International Food Information Council* (www.ific.org/) Nov/Dec, 2001 article, "Beyond the Headlines: What Consumers Need to Know About Nutrition" http://www.ific.org/foodinsight/2001/nd/nutrnewsfi601.cfm , is an "easy read" and provides sound background information.

Background Information - Updated

Food and nutrition misinformation can have harmful effects on the health and economic status of consumers. Consumers must be able to discriminate between credible sources of nutrition information and nutrition quackery.

Accurate nutrition information is the result of application of the scientific method that has survived replication and peer review. Nutrition misinformation consists of erroneous information, a misinterpretation of food and nutrition science. The danger of misinformation is that it may be harmful to health or be used to fuel food fads and health fraud (from the ADA position statement on *Food and Nutrition Misinformation,* http://www.eatright.org/ada/files/MIS.pdf 2006).

According to the *American Dietetic Association's* (www.eatright.org/) *Nutrition and You: Trends 2002* survey, consumers receive nutrition information from a variety of sources. The media are consumers' primary source of nutrition information, with magazines (47%), television (34%), books (29%) and newspapers (28%) cited as the top media information sources. Other sources identified were doctors (31%), the Internet (21%), product labels (19%) and family & friends (18%). Dietitians (1%) and nutritionists (1%) were not frequently mentioned.

The Internet is becoming a popular source of nutrition and health information. According to a Harris Interactive poll, an estimated 100 million consumers sought health information on the Internet in the year 2000, up from 70 million in 1999 (*Wall Street Journal*, 12/29/00). Adolescents frequently use the Internet for health and nutrition information. Researchers in New York State in a study of 412 ethnically diverse 10th graders found that 96% of these adolescents used the Internet and 49% used it to obtain health information (Borzekowski, D.L. and Rikert, V. (2001). *Adolescent cyber surfing for health information: A new resource that crosses barriers.* *Archive of Pediatric Adolescent Medicine*, 155, 813-17).

Terms to know (Definitions from Quackwatch website)**:**

Quackery – the promotion of an unproven product or service. The operant word is promotion rather than intent.
Quack – generally defined as a pretender to special health-related skills
Fraud – an intentional perversion of truth for gain
Unscientific – contrary to scientific evidence
Nonscientific – not based on the scientific approach

Faddism – a generic term used to describe nutrition nonsense. Food faddists are characterized by exaggerated beliefs in the role of diet and nutrition in health and disease.

The *Food and Nutrition Science Alliance (FANSA)* (http://www.ift.org/cms/?pid=1000610) made up of the *American Dietetic Association*, *American Society for Clinical Nutrition*, *American Society for Nutritional Sciences*, *American College of Nutrition*, *American Society for Parenteral and Enteral Nutrition* and the *Institute of Food Technologists* has developed a list of ten "red flags" that signal bad nutrition advice. They are:

1. Recommendations that promise a quick fix. Strong warnings of the dangers of a single product or regimen
2. Claims that sound to good to be true
3. Simplistic conclusions drawn from a complex study
4. Ideas based on a single study
5. Dramatic statements that are not supported by reputable scientific organizations
6. Lists of "good" and "bad" foods
7. Recommendations made to help sell a product
8. Recommendations based on studies without a peer review
9. Recommendations from studies that ignore differences among individuals or groups

Learning Activities:

Middle School Level

- Use the *Believe It or Not* transparency/handout to introduce the concept of nutrition misinformation. Ask students if they believe the headline or not. Discuss the following:
  - What words make you doubt the headline?
  - What further information do you need to determine if the claim is credible or not?
  - What do the abbreviations stand for? Would knowing what the abbreviations stand for be helpful in determining if the information is accurate?
  - Where do consumers see these types of headlines or claims? What sources of nutrition information can be trusted?
- Share the *Ten Red Flags That Signal Bad Nutrition Advice*. Ask students to use this list to evaluate the claims on the *Believe It Or Not* handout. Define quackery for students; then ask them to determine if any of the headlines on the handout would likely be considered quackery and discuss why.

  NOTE TO TEACHER: The following headlines are factual and were taken from press releases at the *Food and Drug Administration* and the *National Institute of Health*. The complete articles can be found at the following websites:

- **"Issues Health Advisory on Puffer Fish from Florida"**
  http://www.fda.gov/bbs/topics/NEWS/2002/NEW00803.html

- **"Weight Loss Device Recalled"**
  http://www.fda.gov/bbs/topics/NEWS/NEW00646.html

- **"NIH Study Suggests Women May Need More Vitamin C"**
  http://www.nih.gov/news/pr/aug2001/niddk-13.htm

High School Level

- Share headlines and news items from a variety of nutrition information sources including newspapers, magazines, brochures, etc. Ask students to quickly review the item they received. Discuss the following:
  - Do you think the information presented is accurate? Why or why not?
  - Who is the author of the article? What are their credentials?
  - Are scientific studies cited? If so, what information is provided about the study?
  - Are "nutrition experts" or "medical professionals" quoted? If so, what qualifies them as a "nutrition expert" or "medical professional"?
  - How can consumers know if nutrition/health information is accurate?
- **NEW** Read the *International Food Information Council* (www.ific.org/) Nov/Dec, 2001 article, "Beyond the Headlines: What Consumers Need to Know About Nutrition", (http://www.ific.org/foodinsight/2001/nd/nutrnewsfi601.cfm) **OR** the fact sheet, "Finding Reliable Nutrition Information on the Web" (http://www.ext.colostate.edu/pubs/columnnn/nn040818e.html) from *Colorado State University Cooperative Extension Service.* After reading the article, ask students to read the articles beyond the headlines and identify issues that should be of concern to informed consumers.
- Complete the activity *"Trust Me – I've Got Credentials"*
  NOTE TO TEACHER: In SD, someone who identifies themselves as a nutritionist must be licensed so most are registered dietitians. This activity could be expanded to include a discussion of careers in nutrition such as a registered dietitian. The ADA website (see reference list) has a section on careers. Check on qualifications for the state of SD by contacting the SD *Department of Health* for the most current information

.

- **NEW sites** Using the criteria for website evaluation on the *Web Site Evaluation Form*, ask students to compare information on dieting at two of the following sites:

  http://www.a-personaldietitian.com/

  www.freedietlinks.com/faddiets.htm

http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/nutrition_350_ENU_HTML.htm (scroll down to the Fact Sheets – Popular Diets Reviewed, Parts 1 and 2)

www.webterrace.com/fad/home.htm

*NEW The *New York Times* has an archive of lesson plans with related news articles. Check out these lesson plans for use in this area:

Good for You? http://www.nytimes.com/learning/teachers/lessons/20051101tuesday.html
Investigating the Health Benefits of Chocolate
In this lesson, students share opinions about nutrition. They then compare the nutritional values of a snack product claiming health benefits with a candy product. Learning is synthesized by reflecting on the responsibility of companies, individuals and the government in determining whether a product lives up to its claims. (November 1, 2005)

Is That A Fact?
http://www.nytimes.com/learning/teachers/lessons/20050503tuesday.html
Finding Evidence to Support or Refute Commonly-Accepted Scientific Claims
In this lesson, students investigate commonly-accepted scientific claims and gather evidence that supports or refutes them. They synthesize their learning by writing their own "Really?" columns modeled after those found in The New York Times weekly Science Times section. (May 3, 2005)

NOTE TO TEACHER: Be sure to visit these sites first to familiarize yourself with them. You may want to add additional sites of your choice relating to other nutrition issues such as eating disorders, supplements, etc.

Believe It or Not?

1. Lose 10 Pounds in One Week with the New "Wonder Diet"
2. Eating Kumquats Daily Helps Prevent the Common Cold
3. FDA Issues Health Advisory on Puffer Fish from Florida
4. Amazing New Supplement Boosts Athletic Performance
5. NIH Study Suggests Women May Need More Vitamin C
6. Grapefruit Has Negative Calories
7. Doctor Identifies New Miracle Drug to Control Diabetes
8. Eating Okra May Postpone Signs of Aging

Believe It or Not? Answer Key

1. Lose 10 Pounds in One Week with the New "Wonder Diet" – *Not Accurate*

2. Eating Kumquats Daily Helps Prevent the Common Cold –*Not Accurate*

3. FDA Issues Health Advisory on Puffer Fish from Florida - *Accurate*

4. Amazing New Supplement Boosts Athletic Performance - *Not Accurate*

5. NIH Study Suggests Women May Need More Vitamin C - *Accurate*

6. Grapefruit Has Negative Calories – *Not Accurate*

7. Doctor Identifies New Miracle Drug to Control Diabetes – *Not Accurate*

8. Eating Okra May Postpone Signs of Aging –
   Not Accurate

Ten Red Flags That Signal Bad Nutrition Advice*

1. Recommendations that promise a quick fix
2. Strong warnings of the dangers of a single product or regimen
3. Claims that sound too good to be true
4. Simplistic conclusions drawn from a complex study
5. Ideas based on a single study
6. Dramatic statements that are not supported by reputable scientific organizations
7. Lists of "good" and "bad" foods
8. Recommendations made to help sell a product
9. Recommendations based on studies published without a peer review
10. Recommendations from studies that ignore differences among individuals or groups

* The list of "Red Flags" was developed by the Food and Nutrition Science Alliance, FANSA, a partnership of four professional scientific societies: American Dietetic Association, American Society for Clinical Nutrition, American Society for Nutritional Sciences and the Institute of Food Technologists; it is guide for all health related sources of information.

"Trust Me - I've Got Credentials"
Nutrition Credentials

Name _____

Directions: Many people claim to be qualified to provide sound nutritional advice. However, some of them may have "questionable" credentials or no credentials at all. Using the article "Where To Get Professional Nutrition Advice" at www.quackwatch.com/04ConsumerEducation/nutritionist.html as a reference, determine which of the following individuals would be qualified to provide sound nutrition advice. If the individual can be a trusted source of nutrition information, state the reason(s) why.

Individual	**Trust them? or Beware?**	**Why? Or why not? Discuss educational background and credentialing requirements**.
Medical doctor/physician		
Ph.D. in Nutrition Education		
Registered Dietician		
Certified Clinical Nutritionist		
Certified or Licensed Nutritionist		
Nutritional Consultant		

Web Site Evaluation Form

Name (s) _____ Website url _____

Evaluation of Web Documents	**Indicators of the Criteria Found on the Website – list specific examples that address the questions**
Accuracy • Who wrote the page and can you contact the author? • What is the purpose of the document • Why was the website developed? • Is the author qualified to write this document?	
Authority • Who published the document? • Check the domain of the document, what institution publishes this document? • Does the publisher list their qualifications?	
Objectivity • What objectives does the page meet? • How detailed is the information? • Are any opinions or bias expressed by the author?	
Currency • When was the site produced? • When was it updated? • How up-to-date are the links?	
Coverage • Are links (if any) evaluated and do they complement the documents' theme? • Is it all images or a balance of images and text? • Is the information cited correctly?	

Adapted from the *Five Criteria for Evaluating Web Pages* from the Cornell Library found at http://www.library.cornell.edu/okuref/webcrit.html

NUTRITIONAL NEEDS OF INIDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

Nutrition Issues and Adolescents

Grade Levels: 9-12

Concept: Healthy Weight Management

Comprehensive Standard: 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

Technical Standard: 6.2.2 Examine the relationship of nutrition and wellness to individual and family health throughout the life span.
6.2.3 Assess the impact of food and fad diets, eating habits, and eating disorders on wellness.

LESSON COMPETENCIES:

- Define body image
- Identify factors that influence body image
- Discuss health risks related to weight management (obesity and underweight)
- Analyze guidelines for healthy weight loss
- Explore fad diets
- Develop a personal plan for maintaining a healthy weight

ANTICIPATED BEHAVIORAL OUTCOMES:

- Students recognize that maintaining a healthy weight is a matter of balancing calorie intake and calorie output.
- Students choose foods, practice eating habits and implement lifestyle changes, including exercise and other physical activity that will assist them in maintaining a healthy weight throughout the lifespan.

Resources Needed:

- Downloadable handouts on body image from the National Cattlemen's Beef Association (see reference list below)
- Copies of all handouts for students
- Four 5 pound bags of flour
- Stopwatch

References for teachers and students:

Team Nutrition, a program developed by the USDA to promote healthy eating and physical activity has several resources appropriate for middle school students. These include a Student Activity Guide and Teacher's Guide with several activities called *yoursSELF*. Several can be downloaded for free at their website or ordered at the site. The address is www.fns.usda.gov/tn.

National Cattlemen's Beef Association has a Leader's Guide and reproducible handouts for students on body image called *Mirror, Mirror*. Both are downloadable at http://www.beefnutrition.org/matedownloadsforpatientsandclients.aspx (updated). This packet was first made available in the 1980s but was updated in 1999.

West, D. (2006). Nutrition and Fitness: Lifestyle Choices for Wellness. Goodheart-Wilcox Publishing, www.g-w.com or phone at 1-800-323-0440 Chapter 12: The Energy Balancing Act and Chapter 13: Healthy Weight Management.

The *Ohio State University Extension Service* has a fact sheet entitled "Body Image" that also includes information on eating disorders. It is available at http://ohioline.osu.edu/hyg-fact/5000/5238.html

NEW The *Federal Trade Commission* has a web page dedicated to spotting faulty weight loss claims, "Red Flag Bogus Weight Claims", with examples of the most commonly used claims and advice for informed consumers at http://www.ftc.gov/redflag/ It also has a link for consumers to file a complaint about an ad or claim that they have found.

NEW The IFIC has several downloadable PowerPoint presentations on healthy weight management available for download at www.ific.org/tools/presentations.cfm

NEW A curriculum supplement for 7-8 grade life science teachers, *The Science of Life,* (http://science-education.nih.gov/supplements/nih4/energy/default.htm) is available from the NIH.

NEW websites:

www.heartsavers.org from the *National Heart Savers Association* provides several word puzzles on healthy food choices and two quizzes on exercise: "Test Your Exercise" and "Heart Smarts and High or Low?" Answer keys are provided for all activities.

http://exchange.co-nect.net/Teleprojects/project/Fitness This site allows for an assessment of personal physical activity relative to other students and an opportunity to participate in an on-line WebQuest to track the results of their physical activity.

www.cdc.gov/nccdphp/sgr/pdf/adoles.pdf CDC's physical activity and the health of young people fact sheet. The site also has BMI calculators (www.cdc.gov/nccdphp/dnpa/bmi/index.htm) for both adults and teen/children.

www.cdc.gov/nccdphp/sgr/adoles.htm This page provides a fact sheet on adolescents and young adults from the *Surgeon General's Report on Physical Activity and Health.*

http://library.thinkquest.org/12153/ This site offers physical fitness definitions, as well as information on warming up before, and cooling down after physical activity. Information on benefits of exercise and diet also included.

www-nehc.med.navy.mil/hp/fitness/index.htm is the *NEHC Physical Fitness Homepage* for the *Navy Environmental Health Center*, Norfolk, VA. Contains links for posters, physical tests, nutrition guides, and physical activity planning guides.

www.bam.gov *BAM!* is sponsored by the *Centers for Disease Control and Prevention* (CDC). Designed to answer kid's questions on health issues and recommend ways to make their bodies and minds healthier, stronger and safer. This is best for elementary and middle school age youth.

www.kidshealth.org *KidsHealth* provides health information for children from birth through adolescence, presented on separate areas for kids, teens and parents.

www.nlm.nih.gov/medlineplus/exercisephysicalfitness.html *Medline Plus* is a site maintained by the *National Library of Medicine* and the *National Institutes of Health*. The "Exercise and Physical Fitness" page offers many links to web pages with information on physical activity and health.

Eating more fruits and vegetables is a way to manage weight; check out the *Fruits and Veggies More Matters* (www.fruitsandveggiesmatter.gov/) website for more information.

www.pueblo.gsa.gov/ Federal publications on fitness, nutrition and health are available at this site.

The *National Governor's Association* has joined with Gov. Mike Huckabee of Arkansas to launch a *Healthy America* campaign (www.nga.org/portal/site/nga/menuitem.751b186f65e10b568a278110501010a0/?vgnextoid=cd86f8dbc1ff6010VgnVCM1000001a01010aRCRD&vgnextchannel=92ebc7df618a2010VgnVCM1000001a01010aRCRD). The website has PSAs featuring the Sesame Street characters. They also have publications and grants available.

The *California Project Lean* (www.californiaprojectlean.org/calculator/) website has lesson plans and resource links on healthy meal planning and physical activity.

The *Stanford Health Promotion Resource Center* has online lessons on this topic available at hprc.stanford.edu/pages/classes/002_weight/default.asp.

The *National Dairy Council* site has info and research on healthy weight with dairy products at www.nationaldairycouncil.org/nationaldairycouncil/healthyweight.

Shape Up America (www.shapeup.org/shape/index_shape.php) is a nonprofit organization committed to addressing obesity as a health issue.

The government website, *Nutrition.gov* (www.nutrition.gov/index.php?mode=homepage), has a wealth of nutrition information and a section specifically dedicated to weight management (www.nutrition.gov/index.php?mode=subject&subject=ng_weight_control&d_subject=Weight%20Management) including interactive tools, info on body image, recipes, popular diets, and a special section for youth.

The *Centers for Disease Control* program *VERB Now* (www.verbnow.com/) promotes physical activities and games to make physical activity fun.

We Can! (Ways to Enhance Children's Activity & Nutrition) www.nhlbi.nih.gov/health/public/heart/obesity/wecan/index.htm is a national program designed as a one-stop resource for parents and caregivers interested in practical tools to help children 8-13 years old stay at a healthy weight. Tips and fun activities focus on three critical behaviors: *improved* food choices, *increased* physical activity and *reduced* screen time. The program is a collaboration of four Institutes of the National Institutes of Health (NIH): the *National Heart, Lung, and Blood Institute* (NHLBI) (www.nhlbi.nih.gov/) , the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), the *National Institute of Child Health and Human Development* (NICHD) (www2.niddk.nih.gov/) and the *National Cancer Institute* (NCI) (www.cancer.gov/) .

Background Information:

We live in a culture that seems to be obsessed with physical appearance especially body shape and size. **Body image** is our personal view and interpretation of our body, including mental, emotional, historical and physical components. It can be defined as "how we perceive our physical appearance, as well as how we think others perceive us" (Body Image fact sheet, *Ohio State University Cooperative Extension Service).* Another definition is "a picture of the body seen through the mind's eye. (*Dairy Council of California*)

Body image is influenced by a variety of forces:

- **Culture –** the values of society at large
- **Mass Media** – images of the "ideal" female or male physique
- **Advertising –** a form of mass media that "plays upon" accepted cultural values of thinness and fitness to sell and promote products or services

While body image contributes to concerns over maintaining a healthy weight, physical activity and exercise are important factors in the maintenance of a healthy weight. The following statistics offer a glimpse of the activity patterns of teens:

- More than 1 in 3 (35%) of teens do not participate regularly in vigorous physical activity
- Regular participation in vigorous physical activity drops from 73% of 9th grade students to 61% of 12th grade students
- Nearly half (45%) are not enrolled in physical education classes; enrollment drops from 79% in 9th grade to 37% in 12th grade
- National transportation surveys have found that walking and bicycling by children aged 5-15 dropped 40% between 1977 and 1995.
- Although an estimated 38 million young people participate in youth sports programs, participation declines substantially as children progress through adolescence. One study found that attrition from youth sports programs was occurring among 10-year-olds and peaked among 14-15 year olds.

This data indicates that participation in competitive sports is not often the solution to physical activity for teens. Teens need to be encouraged to participate in lifetime fitness activities such as walking, bicycle riding and fitness-oriented recreational activities.

Terms to know (definitions from www.bam.gov)

- **Exercise –** is planned, is structured and provides for repetitive body movements. It is done to improve or maintain one or more components of physical fitness.
- **Physical Activity –** any bodily movement produced by skeletal muscles that results in energy expenditure and is positively correlated with physical fitness
- **Physical Fitness –** is a set of attributes that people have or achieve relating to their ability to perform physical activity. The health-related components of physical fitness include the following: body composition, cardiovascular endurance, flexibility, muscular endurance and muscular strength
- **Healthy Weight –** depends on several factors including height, physical activity, muscle mass, heredity, gender, etc.

Both exercise and physical activity are a part of healthy management but the

Dietary Guidelines clearly encourage physical activity on a regular basis.

Understanding energy balance is the key to weight management. Balancing energy involves equating the amount of energy you take in with the amount of energy you use. The energy in foods is measured in calories so the energy balance can be expressed as "calories in, equal to calories out". Energy imbalance occurs when a person consumes too few or too many calories for his or her energy needs (Nutrition and Fitness, 2000).

NEW *MyPyramid* (www.mypyramid.gov) and the *Dietary Guidelines, 2005* (www.health.gov/dietaryguidelines/) are as much about physical activity as they are about what to eat to maintain health. **Healthy weight** is defined as a body mass index (BMI) equal to or greater than 19 and less than 25 among **all people aged 20 or over**. To determine body mass index, divide weight in kilograms (2.2 lbs. = 1 kg) by height in meters squared (39.4 ins. = 1 m). See the "table" (www.consumer.gov/weightloss/bmi.htm) for quick conversion from height and weight to BMI. (From the "Partnership Principles" of the *Partnership for Healthy Weight Management*, www.consumer.gov/weightloss/principles.htm at the *Partnership for Healthy Weight Management* website www.consumer.gov/weightloss/index.htm).

Learning Activities:

Middle School Level

- Use the reproducibles, *Worksheet A – Great Figures* and *Worksheet B – Beautiful People* from the *National Cattlemen's Beef Association* website (see reference list) to begin a discussion on body image and body types. Discuss student responses to the questions.
  - Do all of the celebrities you have listed have a similar body type? How would you describe their body types?
  - Do they look healthy? What characteristics indicate that they are healthy or unhealthy?
  - Do we admire people based on their appearance? Why or why not?
  - What characteristics make a person "beautiful"?
  - Why is so much emphasis placed on physical appearance? What can we do to change these pressures?
- Define body image and list the influences on body image. Discuss these influences (see background information)
- Show pictures of individuals who are underweight and who are overweight. Ask: What risk factors are associated with each of these eating problems?
- Define healthy weight. Discuss the factors that are involved in determining healthy weight – a weight at which your body fat is in an appropriate proportion to lean tissue. Consider age, physical maturity, gender, physical activity, heredity factors, etc.
- Ask students to participate in a "Plus Ten" Relay. Divide the class into 2 relay teams. Place half of the participants at one hand of the room and the other half at the other end of the room. Each participant must walk a designated distance carrying a five-pound bag of flour or sugar in each hand.

When they reach the destination, the student passes off the bags of flour or sugar to the next person to continue the relay. When the relay is completed, discuss how an added ten pounds impacts health. Possible questions include:

- How did it feel to carry the bags of flour or sugar?
- Did you get tired?
- What if you had to carry the bags around all day? How would that impact your day?

Relate this activity to being overweight and how the added weight places stress on your body.

NOTE TO TEACHER: You could repeat the relay with students carrying a ten pound bag of flour/sugar in each hand. Discuss the additional stress with 20 pounds of added weight. Time both relays to see if the time increases when the students carry the added weight.

- Define "healthy weight". Ask students to brainstorm their definition of what is meant by a healthy weight. Discuss factors that influence a healthy weight such as height, activity level, heredity, muscle mass, etc. Students can calculate their body mass index (BMI) using the "What's Your BMI?" activity in the *yourSELF Student Activity Guide* (http://teamnutrition.usda.gov/Educators/repromas.pdf) from *Team Nutrition*. Use the government "BMI calculators for teens" (www.cdc.gov/nccdphp/dnpa/bmi/index.htm).
- Discuss the concept of energy balance and the "calories in- calories out" equation for maintaining body weight.
- Ask students to develop a plan for an active lifestyle by completing "Worksheet D – Say "YES!" to a High-Energy Life" (www.beefnutrition.org/uDocs/ACF871.pdf) available at *National Cattlemen's Beef Association* website (see reference list) OR use the "Move It!" and "What's Your Goal?" worksheets available in the *yourSELF Student Activity Guide* (http://teamnutrition.usda.gov/Educators/repromas.pdf) , from *Team Nutrition.* Students set goals for healthy food choices and for increasing physical activity and develop plans to meet these goals. The teacher's guide for *yourSELF* provides assistance for teachers in using these activities.

High School Level

- Define healthy weight. Discuss the factors that are involved in determining healthy weight – a weight at which your body fat is in an appropriate proportion to lean tissue. Consider age, physical maturity, gender, physical activity, heredity factors, etc.
- Assess several measures for determining whether or not your weight is healthy:
  - Height and weight tables (examples in Nutrition and Wellness text)
  - Body fat measuring methods: skinfold test with caliper, pinch test (examples in Nutrition and Wellness text and Dairy Council materials)
- Calculate body mass index (BMI) using charts available in texts or on the web at www.consumer.gov/weightloss Use caution as BMI calculations are meant for adults (see text, Nutrition and Wellness from reference list). Students can

calculate their body mass index (BMI) using the "What's Your BMI?" activity in the *yourSELF Student Activity Guide* (http://teamnutrition.usda.gov/Educators/repromas.pdf) from *Team Nutrition*.

- Ask students to work in groups of 2-3 and brainstorm everything that can be considered physical activity and write each on a sticky note. When students are finished, ask them to place the sticky notes on the board. Ask students if they could form "clusters" of similar activities (for example, gardening, housework may be in one category, while biking, walking might be in another). Discuss which of these could be part of a plan for physical activity to help maintain or lose body weight.
- Discuss the benefits of physical activity and physical fitness using the *Benefits of Regular Physical Activity* transparency master. For additional information, read *Life Advice About Fitness and Exercise*.
- Develop a personal fitness calendar for one week including athletic practices, exercise routines and other physical activities such as walking,

Extended Learning Activities:

- ***KidsWalk-to-School Campaign –*** As a class activity or as an FCCLA Student Body, Community Service or FACTS project, conduct a *KidsWalk-to-School* campaign. *KidsWalk-to-School* is a program that aims to get children and teens to walk and to bicycle to and from school in groups accompanied by adults. The program encourages physical activity by showing communities how to make it safer and more enjoyable for kids to walk to and from school. **NEW** To obtain a copy of the *KidsWalk-to-School* guide and other links to information about this event, go to the *Centers for Disease Control* website and download guides and reproducibles to help plan the event www.cdc.gov/search.do?action=search&queryText=kids+walk&x=15&y=10 Also, visit the United States website for International Walk to School Day at www.walktoschool.org/
- **National Family Week –** As part of National Family Week, develop a brochure on physical activities that families can do together which are inexpensive such as walking, biking, hiking, etc.
- Host a **Family Fitness Night** as part of National Family Week activities with relays and other events involving physical activity – a Family Olympics with medals for winners, etc.

Academic Connections NEW

- ✓ **Mathematics** – Calculate the number of calories burned by a variety of different activities: walking, running, mowing lawn, gardening, bowling, etc. Create posters and graphs showing how much exercise is needed to burn off specific foods such as a slice of pepperoni pizza, a cheeseburger, a 20-oz. soda, etc.
- ✓ **Physical Education** – Students can take the *President's Challenge* (http://www.presidentschallenge.org/index.aspx) a fitness challenge for all ages; work with teachers and staff to conduct the challenge for everyone involved in the

school system in a school wide effort to improve health and fitness. Host a school wide competition between students, faculty and staff to see who has the most success. Awards can be ordered at the site.

- ✓ **Economics** – Research the cost of the obesity epidemic in the United States on insurance costs and health care.
- ✓ **Mathematics** – research and graph the changes in weight and obesity rates of Americans over the course of the past twenty years.

Benefits of Regular Physical Activity

- **Assists in maintaining health body weight**
- **Increases energy**
- **Increases strength for routine activities**
- **Improves muscle tone**
- **Bone strength**
- **Strong heart and lung systems**
- **Improves mental health**
- **Helps you handle stress**
- **Sleep better**
- **Lowers risk of**
  - **heart disease**
  - **high blood pressure**
  - **high cholesterol**
  - **obesity**
  - **diabetes**

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning Meals

Grade Levels: 7-12

Concept: Dietary Guidelines for Americans – **Updated with 2005 Guidelines**

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.1. Apply various dietary guidelines in planning to meet nutrition and wellness needs

LESSON COMPETENCIES

- Explore the *Dietary Guidelines for Americans*
- Discuss personal plans for putting the guidelines into practice
- Practice the Dietary Guidelines in making food choices and lifestyle choices

Anticipated Behavioral Outcomes

- Students practice the dietary guidelines in developing a healthy lifestyle and encourage others to do so.

Resources Needed:

- Newsprint and markers
- Transparency master or handout on Dietary Guidelines for students
- Copies of *Health and Recreation Application Form*.

References for teachers and students:

A wealth of information and copies of the Dietary Guidelines can be downloaded or ordered at the USDA website www.healthierus.gov/dietaryguidelines/. The 84 page booklet, *Dietary Guidelines for Americans* 2005 may be viewed, downloaded and/or ordered from this site. The complete document can be downloaded at www.health.gov/dietaryguidelines/dga2005/document/ A downloadable PowerPoint presentation on the *Dietary Guidelines, 2005* is available at the site as well, click on the "Toolkit for Health Professionals" (www.health.gov/dietaryguidelines/dga2005/toolkit/) link

NEW - The *Center for Disease Control* (www.cdc.gov/) provides some excellent background information on "Overweight and Obesity" issues (www.cdc.gov/nccdphp/dnpa/obesity/index.htm) for youth and adults.

Background Information Updated:

Since 1980, the *United States Department of Agriculture* (USDA) has published the *Dietary Guidelines for Americans* every 5 years. The Dietary Guidelines provide the basis for Federal nutrition policy and nutrition education activities. They are based on what experts have determined

to be the best scientific knowledge about diet, physical activity and other issues related to what we should eat and how much physical activity we need.

Specifically, the Guidelines provide advice for healthy Americans ages 2 years and over about food choices that promote health and prevent disease (USDA, *2005 Dietary Guidelines for Americans*). Diet is more important than ever before according to the USDA. Millions of Americans need to improve their diets.

The Dietary Guidelines answer the questions, "What should Americans eat, how should we prepare our food to keep it safe and wholesome, and how should we be active to be healthy?" The Dietary Guidelines are designed to help Americans choose diets that will meet nutrient requirements, promote health, support active lives and reduce risks of chronic disease.

According to the *Dietary Guidelines 2005*, the following are some areas of concern:

- Nearly 65% of adults are overweight and of this number, 30% are obese - that is, they have a body mass index (BMI) of 30 or greater.
- Over the last two decades, the prevalence of overweight among children and adolescents has increased substantially; it is estimated that as many as one-third of children and adolescents in the US are overweight or at risk of being overweight, representing a doubling of the rate among children and tripling of the rate among adolescents.
- Major causes of morbidity and mortality in the United States are related to poor diet and a sedentary lifestyle. Specific diseases and conditions linked to poor diet include cardiovascular disease, hypertension, dyslipidemia, type 2 diabetes, overweight and obesity, osteoporosis, constipation, diverticular disease, iron deficiency anemia, oral disease, malnutrition, and some cancers.
- Lack of physical activity has been associated with cardiovascular disease, hypertension, overweight and obesity, osteoporosis, diabetes, and certain cancers.

According to the January 12, 2005 news release (www.hhs.gov/news/press/2005pres/20050112.html) from the *United States Department of Health*, the sixth edition of *Dietary Guidelines for Americans* (www.healthierus.gov/dietaryguidelines/) released in 2005 places stronger emphasis on reducing calorie consumption and increasing physical activity. Eating a healthy balance of nutritious foods continues as a central element in the Dietary Guidelines, but total calories count as well. Because almost 2/3 of Americans are overweight or obese and more than half get too little physical activity, the 2005 Dietary Guidelines place a stronger emphasis on calorie control and physical activity.

The report identifies 41 key recommendations, of which 23 are for the general public and 18 for special populations. They are grouped into nine general topics and are described in the "Key Recommendations for the General Public" (www.health.gov/dietaryguidelines/dga2005/recommendations.htm):

- Adequate nutrients within calorie needs
- Weight management
- Physical activity
- Food groups to encourage (fruits and vegetables, whole grains and low-fat/skim milk products)

- Fats
- Carbohydrates
- Sodium and Potassium
- Alcoholic beverages
- Food safety

NOTE TO TEACHER: **Be sure to read the key recommendations before beginning this lesson. This lesson should be closely linked to MyPyramid.**

Learning Activities:

Middle School Level

- Hold up pictures of healthy children, teens and adults involved in a variety of activities. Ask students if they think these people look healthy. Ask, "What things about them indicate that they are in good health?"
- Divide students into groups of 2-3 by giving them each a picture of a food. Teams are formed by foods from the same food group in *MyPyramid* (www.mypyramid.gov/); those students with foods from the same group become a team. Tell students that they have been called together to develop a list of 5-10 recommendations to help Americans develop healthy eating and lifestyle habits. Ask students to create a list of "Guidelines for Good Health". Write the task on the board to assist/remind students. When students have finished their "Guidelines", ask them to present them to the class; post in the classroom.
- Introduce the 9 Key Recommendations of the Dietary Guidelines, 2005 for the general public with students. Use the handout/transparency master, *Dietary Guidelines for Americans, 2005.* Explain that just as they worked together as students, nutrition experts from across the country worked together to develop guidelines for all Americans. Clarify any terms that students may not understand (i.e. saturated fats, cholesterol, etc.)
- Ask students to compare their recommendations to those suggested by nutrition experts. What are some of the similarities? Point out the nine key recommendations for the Dietary Guidelines that provide the framework for a healthy lifestyle.
- Discuss the reasons why the Dietary Guidelines were established. (see background information)
- Ask students to identify what they are doing or would be willing to do to implement the Dietary Guidelines by completing the *Dietary Guidelines: The Fine Nine*

High School Level

- Use headlines from the newspaper that address health concerns in the news. Include issues related to heart disease, cancer, obesity, lack of physical activity, increased insurance costs, etc. Discuss the articles with students and what they represent in regards to the eating and lifestyle habits of Americans

thus the need for guidelines to assist Americans to improve their overall health.

- Introduce the Dietary Guidelines for Americans with students. Use the PowerPoint presentation, *Dietary Guidelines for American, 2005,* from the *Department of Health and Human Services*, downloadable at the "Toolkit for Health Professionals" (www.health.gov/dietaryguidelines/dga2005/toolkit/) link. Explain that nutrition experts from across the country worked together to develop guidelines for all Americans and they are tied to MyPyramid. Clarify any terms that students may not understand (i.e. saturated fats, cholesterol, etc.)
- Review the 9 key recommendations of the *Dietary Guidelines for Americans* with students. Use the transparency master, *Dietary Guidelines for Americans* and the webpage elaborating on the recommendation click on the "Key Recommendations for the General Public" (www.health.gov/dietaryguidelines/dga2005/recommendations.htm)
- Students work together in teams of 2 to answer the *Classified Ads* promoting a business opportunity to open a restaurant for health conscious consumers at a local community recreation center. Students complete the *Health and Recreation Application Form*.
  NOTE TO TEACHER: You may want students to give an oral presentation to the class as well as the written application. You will need to develop a scoring rubric for this activity before assigning to students.

Extended Learning Activities

- As a part of a **Power of One (A Better You) project for FCCLA** develop a personal plan for implementing one or more of the Dietary Guidelines. For example, under "Be Physically Active Every Day" develop a plan for including physical activity every day and implement the plan.
- Develop a **Home Teams for Health** competition among student teams in your school related to the Dietary Guidelines. Ask the teams to report on their progress each week. At the end of the month, award prizes to the team that was the most successful.
- Work with the school newspaper or local newspaper to include a weekly **"Health Column"**. Ask students to write a feature article on each of the key recommendations from *Dietary Guidelines for Americans*. For an interdisciplinary teaching approach, work with a Language Arts teacher on this assignment – the Language Arts teacher could address the writing style and the FCS teacher the content.

Academic Connections – NEW

- ✓ **Economics/Entrepreneurship –** Review sample business plans for a food-related business; evaluate for adherence to the dietary guidelines and offer suggestions.

Dietary Guidelines For Americans, 2005

Key Recommendations:

- **Adequate Nutrients within Calorie Needs**
- **Weight Management**
- **Physical Activity**
- **Food Groups to Encourage**
- **Fats**
- **Carbohydrates**
- **Sodium and Potassium**
- **Alcoholic Beverages**
- **Food Safety**

The "Fine Nine"

Name _____

Directions: For each of the Key Recommendations for Dietary Guidelines, complete the chart identifying what you are currently doing to meet that guideline or could change in your lifestyle to meet that guideline.

Dietary Guideline	What I Am Currently Doing to Meet this Guideline?	What Changes Could I Make in My Lifestyle to Meet this Guideline
Eat a variety of nutrient-dense foods from the MyPyramid guide especially a variety of fruits and veggies in a variety of colors		
Balance calories from food with calories used to maintain ideal body weight		
Engage in at least 60 minutes of physical activity on most days of the week		
Make half or more of your grains whole		
Consume 3 cups per day of fat-free or low-fat milk or equivalent milk products		
Choose a diet low in saturated fat & cholesterol & moderate in total fat – 25-35% of daily calories		
Choose beverages & foods to moderate intake of sugars		
Choose and prepare foods with little salt		
Keep food safe by washing hands and storing properly		
You are not old enough to legally drink alcoholic beverages!		

Classified Ads

Business Opportunity: Restaurant in new community health and recreation center. Excellent location. High-traffic area.

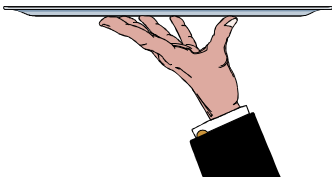
Looking for a small group of owners with fresh, creative ideas and menus that will appeal to health-conscious consumers. Must believe in "good food for food health". Must be able to plan menus that match the Dietary Guidelines, 2005. Interested parties must submit applications by _____.

Owner/employee benefits include: use of swimming pool, track, basketball, volleyball, racquetball and tennis courts, dance studio and other facilities at no cost.

Interested parties must submit the applications with:

- restaurant name
- sample menu showing menu items (include a breakfast menu and a lunch/dinner menu with appetizers, light entrees/main dishes, salads, sides, desserts and beverages)
- nutrition statement about menu items for customers
- art for outside of menu cover
- any menu tips/healthy habits to help the customer

Applications must be submitted in a portfolio format and turned in no later than _____.



Adapted from the Dietary Guidelines and Your Diet Teacher's Guide, USDA, February, 1988.

Health and Recreation Center

Application Form

Applicants' Names: _____

_____

Restaurant Name: _____

Date: _____

Sample Menu

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Selecting Foods to Meet Nutritional Needs

Grade Levels: 7-12

Concept: Fast Food

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.2 Select, store, prepare and serve nutritious and aesthetically pleasing foods that meet the health and wellness needs of family members based on available resources

LESSON COMPETENCIES

- Identify the nutrient content of fast food choices
- Recognize the nutritional risks of fast food and other eating establishments

Anticipated Behavioral Outcomes:

- Students will select healthy alternatives at fast food restaurants

Resources Needed:

- Copies of handouts for all students
- 3 x 5 note cards
- Internet access for all students

References for teachers and students:

Schlosser, E. (2002). Fast Food Nation: The Dark Side of the All-American Meal. Perennial (HarperCollins) Publishing. A video is also available.

NEW Visit the *Wikipedia* reference for fast food at the following address: http://en.wikipedia.org/wiki/Fast_food

NEW Read the article, "Healthy Fast Food: Guide to Healthy Fast Food Restaurant Eating" (www.helpguide.org/life/fast_food_nutrition.htm).

A Fast Food Nutrition Fact Explorer with a search function that allows you to explore 8 different fast food restaurant menus to compare calories, calories from fat and the nutrient composition of menu items. The site is www.fatcalories.com/

The Real Truth about Fast Food and Nutrition is an entry in the *ThinkQuest* library of websites developed by adolescents for adolescents and can be found at http://library.thinkquest.org/4485/frames.htm. This site focuses on the nutritional value of fast food restaurant items and how these restaurants get you to buy the food. There is an online quiz for students comparing menu items called *Which Meal is Healthier*, as well as nutrition information and links to some fast food restaurants.

NEW The "Calorie King Food Database" (www.calorieking.com/foods/calories-in-fast-food-chains-restaurants_c-Y2lkPTIxJnBhcj0.html) has nutritional information for over 45,000 American generic and brand name foods (including over 260 fast-food chains) with a wide range of nutrient data and information available including calorie

count charts, fat content, fiber content, protein content and more. Another database called "Calories and Nutrients in Fast Food" has over 1,300 menu items from 19 restaurants can be found at www.dietandfitnesstoday.com/fastfoodsearch.php. It also compares food categories such as burgers from all of the restaurants for calories and nutritional value

NEW The *Harvard Medical School* website has nutrition information for all ages and features an interactive tool for assessing the calorie and fat content of foods served at the baseball park, "The Score on Stadium Nutrition" is available at www.intelihealth.com/IH/ihtIH/WSIHW000/23722/14197.html.

Background Information:

Fast food has become a part of the busy American lifestyle. It is convenient, predictable, and fast. It is also often high in calories, sodium, fat and cholesterol and low in vitamins and minerals.

According to Eric Schlosser in his book *Fast Food Nation* (2002), Americans spend more on fast food a year than they do movies, books, magazines, newspapers, videos and records combined. Americans spent more than $100 billion on fast food in 2000 compared to $6 billion in 1970. Every month more than 90% of American children eat at McDonald's; the average American eats three hamburgers and four orders of fries every week. Schlosser links fast food to the rise of obesity and raises concerns about the safety of fast food.

Fast food can be a part of the American diet as long as choices are made wisely considering the *MyPyramid* and the *Dietary Guidelines for Americans* and if limited. The *Ohio State University Cooperative Extension Service* (http://ohioline.osu.edu/hyg-fact/5000/5555.html) offers guidelines for fitting fast food into healthy eating. They suggest that a fast food can be a part of healthy eating if based on a 2000 calorie diet:

- it is part of one or all of the basic food groups (*MyPyramid* www.mypyramid.gov/index.aspx)
  - 3 servings of low-fat or nonfat milk or dairy products
  - 6 – ounce equivalents of breads, cereals, grain; ½ should be whole grains
  - 2 cups of fruit
  - 2 ½ cups of vegetables
  - 5.5 ounce servings of meat or meat substitutes
- it allows you to keep the following nutrients low in the diet
  - sugars
  - fat, especially saturated fat
  - salt
  - calories
- it allows you to choose fewer calories and more nutrients

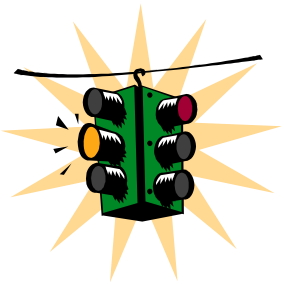
Learning Activities:

Middle School Level

- Ask students to place an order for their favorite fast food meal by writing out the meal on a restaurant order form or 3 X5 note cards.
- Review the *Life in the Fast Lane* handout/transparency with students. As you go through the 4 key points for making choices at a fast food restaurant, cover the suggestions given and ask students to offer suggestions as to how they could accomplish the guideline, and then reveal the suggestions on the transparency. Use menus from area or popular fast food restaurants and ask students to make choices based on the 4 key recommendations.
- Ask students to visit the *Real Truth About Fast Foods and Nutrition* (http://library.thinkquest.org/4485/) *ThinkQuest* website (see reference section). Click on "McDonald's/Burger King/Wendy's" section to compare the nutrition content and calories in similar menu choices at these restaurants by completing the *Fast Food Frenzy - How Do the Fast Foods Compare?* activity.
- Students should select their favorite fast food meal from the list and complete a nutritional analysis of their favorite fast food meal using the handout, *My Favorite Fast Food Meal*.

Extended Learning Activities

- **Field Trip without Fast Food** - Pack nutritious sack lunches for a class field trip and avoid the fast food choices. Consider food safety principles.
- **Nutrition on the Go** – Plan and pack nutritious sack lunches for the school athletic teams and give to them as they leave for a competition. Consider food safety principles



"Yield" to the Right Choices

1. Reduce fats, saturated fats and cholesterol

- Choose plain burgers and sandwiches
- Leave off the sauce, mayo, cheese & bacon
- Avoid fried foods – French fries, onion rings, cheese sticks
- Select broiled or grilled instead of fried
- Drink water or low fat milk instead of pop
- Order tacos on a plain soft tortilla
- Skip croissants & biscuits
- Eat raw veggies and salads with no dressing or reduce amount of dressing
- Choose small portions
- Skip dessert

2. Limit Sugar

- **Use less ketchup, relish, jelly, honey, BBQ sauce, etc.**
- **Choose fresh fruit at the salad bar**
- **Avoid pop, choose milk or water instead**
- **Skip dessert**

3. Limit Sodium

- **Limit salad dressings, use a lemon wedge instead**
- **Limit sausage, ham, bacon & biscuits**
- **Use salt sparingly**

4. Increase fiber

- **Choose fresh fruits & veggies**
- **Select sandwiches with tomato & lettuce**
- **Choose whole grain buns**
- **Eat baked potatoes with skins**
- **Choose foods which include beans**

Fast Food Frenzy

How Do Fast Foods Compare?

Name _____

Directions: Visit *The Real Truth About Fast Food ThinkQuest* which can be accessed at http://library.thinkquest.org/4485/frames.htm and answer the following questions?

Burgers

1. Which of the burgers listed is the lowest in calories and how many calories does it have?

2. Which of the burgers is the highest in calories and how many calories does it have?

3. Which of the burgers has the most total fat and how many grams of fat does it have?

4. Which of the burgers has the least total fat and how many grams of fat does it have?

Fries/Baked Potatoes

5. Ann wants to watch calories. Should she order a baked potato with sour cream and chives or large French fries?

6. If Ann orders a plain baked potato, click on the Wendy's site and find out many calories she saved?

	Calories
a. Baked Potato with Sour Cream & chives	_____
b. Plain Baked Potato (10oz)	_____
c. Calories saved	_____

Salads

7. Ann orders a garden salad at McDonald's. How many calories in the salad?

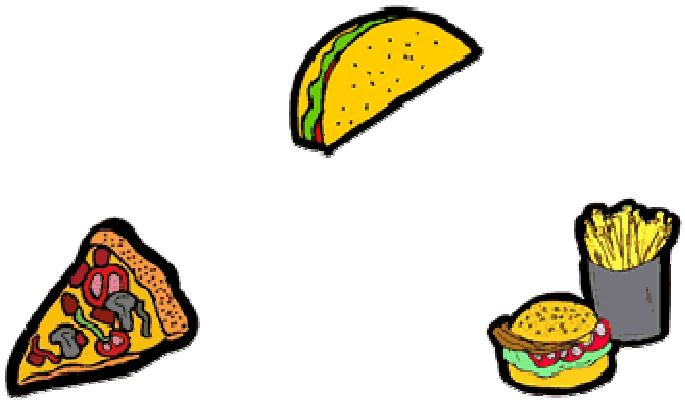
8. Should she add the Ranch Dressing? Why or why not?

The Big Question: Based on what you have learned about nutrition and the MyPyramid food guide, what are three things you could do when eating at fast food restaurant to make healthy choices?

*

*

*

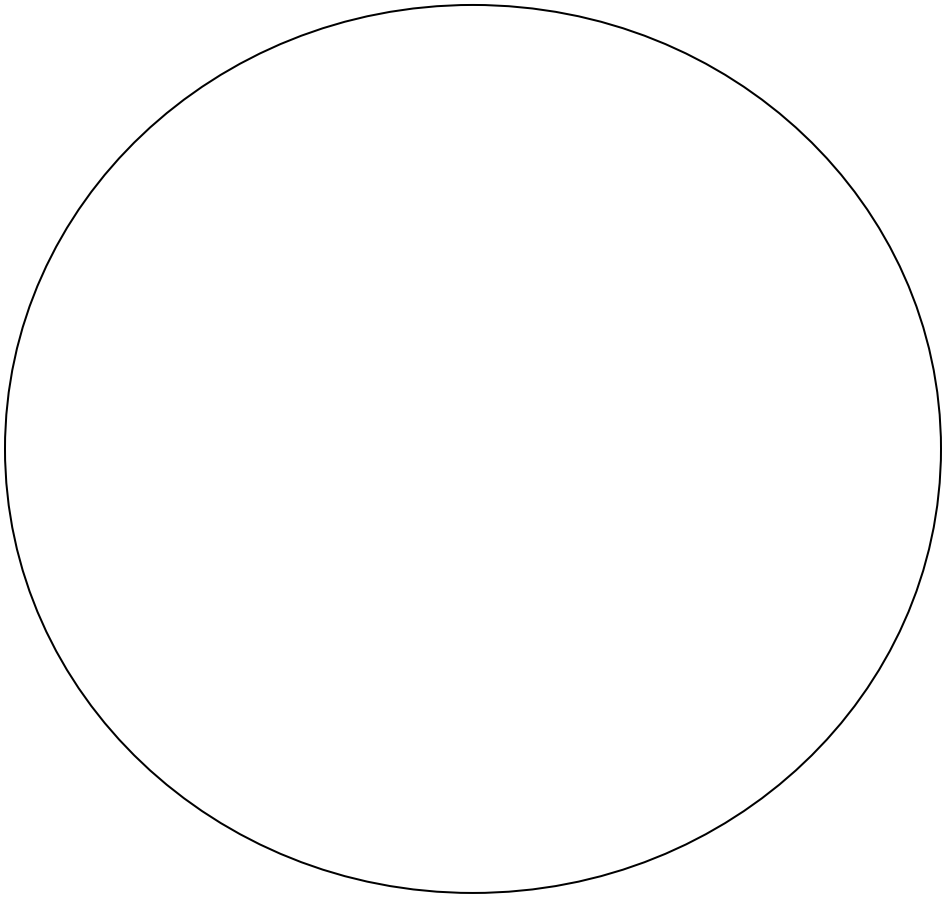


Your Favorite Fast Food Meal

Directions: Choose your favorite fast food restaurant from the list provided at the website. In the "plate" below, write out the foods you usually choose when eating at this fast food restaurant.

My fast food restaurant choice is _____.

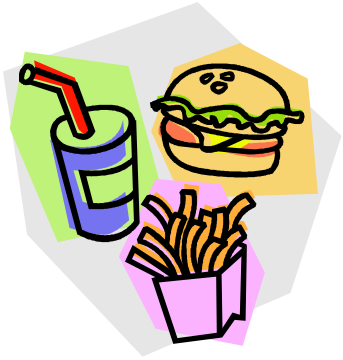
Menu



Next, complete the table below to explore the nutritional content of your meal.

Food Chosen	Serving Size	Calories	Calories From fat	Total Fat grams	Saturated Fat grams	Sodium mg	Protein g	Vit.A %Daily Value	Vit.C %Daily Value	Calcium %Daily Value	Iron %Daily Value

My Favorite Fast Food Meal



Directions: Complete the chart below using the foods from your favorite fast food meal; to complete the chart visit the Fast Food Facts website.

Name _____

Fast Food Restaurant _____

Food Item	Serving Size	Calories	Tot. Fat	Saturated Fat	Carbs	Protein

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS
Selecting Foods To Meet Nutritional Needs
Grade Levels: 9-12

Concept: Eating/Dining Out

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.2 Select, store, prepare and serve nutritious and aesthetically pleasing foods that meet the health and wellness needs of family members based on available resources

LESSON COMPETENCIES

- Identify common nutrition concerns related to eating out
- Develop strategies for healthy eating while eating out
- Analyze menu items for key nutrients

Anticipated Behavioral Outcomes:

- Students follow the Dietary Guidelines when eating out.
- Students identify food items on the menu that may be high in calories, fat and sodium and make appropriate substitutes to lower calories, fat and sodium.

Resources Needed:

- Transparency – *Fact or Fiction*
- Copies of the article *Special Issues: Eating Habits: Eating Out, (*see reference list below) for each student
- Copies of handout, *Tips for Eating Out That Don't Cost a Dime*
- Menus from area restaurants

References for teachers and students:

NEW – An important resource for this topic is the "Eating Out with the Guidelines" (www.health.gov/dietaryguidelines/dga2005/toolkit/eatout.htm) webpage with tips for eating out based on the *2005 Dietary Guidelines for Americans* including tip sheets on portion sizes, eating ethnic foods and more.

NEW – Read the summary of a research study linking fast food and poor nutrition in U. S. children at this USDA site (www.ars.usda.gov/is/pr/2004/040105.htm?pf=1).

"Restaurant Portions – Is Bigger Really Better?"– This article discusses super-sizing and offers suggestions for consumers when eating out. It is available from the *Colorado State University Cooperative Extension Service* at www.ext.colostate.edu/pubs/columncc/cc011009.html

A similar news release is available from the *American Dietetic Association* (www.eatright.org) "Are Growing Portion Sizes Leading to Expanding Waistlines? (www.eatright.org/cps/rde/xchg/ada/hs.xsl/media_3073_ENU_HTML.htm).

A related article, "Value Marketing is Making Americans Fat", from the *Nutrition Perspectives,* March-April, 2001 edition that discusses portion sizes in restaurants and obesity is available at http://nutrition.ucdavis.edu/perspectives/MarApr01.htm.

"A Diner's Guide to Health and Nutrition Claims on Restaurant Menus" is available at www.cspinet.org/reports/dinersgu.html from the *Center for Science for Public Interest.*

Another appropriate article is "Eating Well While Eating Out" (www.kidshealth.org/teen/food_fitness/nutrition/eating_out.html), found at the *TeensHealth* website (www.kidshealth.org). Click on "Enter Teens"; click on "Food and Fitness."

"Salad Bars – Are they Low in Calories?" is available from the Nutrition Information Resource Center at Clemson University in the May, 2002 issue of the *Nourishing News* newsletter, a publication of the *Nutrition Information Resource Center* at *Clemson University* http://virtual.clemson.edu/groups/NIRC/archive.php. You can subscribe to this newsletter at the site; it is free.

The "Seven Ways To Size Up Your Servings" copy master is available from the *Dairy Council of the Upper Midwest* (www.midwestdairy.com/files/PDF/2006NutritionEdMaterialorderform2-06.pdf). Download the order form to send for this free brochure.

NEW The *MyPyramid* (www.mypyramid.gov/) site has a "Tips for Eating Healthy When Eating Out" (www.mypyramid.gov/tips_resources/eating_out_print.html) resource page with hints for making healthy choices when eating away from home.

Texas Tech University, Iowa State University and *University of Wisconsin-Stout* (September, 2001). *Assessment Strategies for Family and Consumer Food and Nutrition National Standards.* Funded by the USDA, *Cooperative State Research, Education and Extension Service* and *Higher Education Challenge Grants*. Available from The *Curriculum Center for Family and Consumer Sciences*, *Texas Tech University,* Box 41161, Lubbock, TX 79409-1161, Phone 806-742-3029. Request Item #4500. Cost is $20.00 + $5.00 shipping and handling.

NEW - Two slide sets are available at this website that show how today's portions compare to the portions available 20 years ago, use them as a quiz with "Portion Distortion I (2003)" and "Portion Distortion II (2004)" (http://hp2010.nhlbihin.net/portion/) . You will also learn about the amount of physical activity required to burn off the extra calories provided by today's portions.

NEW The *WebMD* website offers their "Top Picks for Fast Food" (www.medicinenet.com/script/main/art.asp?articlekey=55724) and "Eating Out the Healthy Way" (www.medicinenet.com/script/main/art.asp?subject=eating_out_and_entertaining). Other articles related to this topic can be found at the *WebMD* "Eating Out and Entertaining Related Health Facts" (www.medicinenet.com/script/main/forum.asp?articlekey=58588&articletype=hf) page.

Background Information:

Eating out is no longer a special occasion; it is almost a daily event. Nearly half of all food dollars is spent on food eaten away from home. It represents one third of all calories in the American diet (*Center for Science in the Public Interest,* http://www.cspinet.org/)

According to a new report from the *US Department of Agriculture* (http://www.usda.gov/wps/portal/usdahome) entitled, "Away-from-Home Foods Increasingly Important to Quality of the American Diet", the nutrient content of meals eaten away from home is failing to keep pace with the nutritional improvements in home-prepared foods. Compared with home-prepared foods, food prepared outside the home contains more of the nutrients Americans over-consume such as saturated fat, and less of those that they under-consume, such as calcium, fiber and iron (*Nutrition Today*, May, 1999). Specific findings of the study include:

- The frequency of eating out rose by more than 2/3 over the decades of the 80s and 90s.
- Fat contributed 32% of calories in home-prepared foods but 38% in foods prepared away-from-home.
- The fiber content of away-from-home prepared foods was 25% less than that of home prepared foods.
- Calcium content of home-prepared foods was close to the nutritional benchmark but away-from-home foods were 20% below the benchmark. School foods were even higher in calcium than home foods.
- Low iron intake is common among teenage girls and young women. For this group, food eaten away from home had an iron density 29% below the benchmark.
- Meals served in school cafeterias tended to be lower in total fat and higher in calcium and dietary fiber than other meals.

NEW According to the June 2006 news release (http://www.fda.gov/bbs/topics/NEWS/2006/NEW01379.html) from the USDA, a recent study found that the impact of away-from-home foods is significant. Americans spend approximately 46 percent of their food budget on food prepared away from home and take in 32 percent of their calories from such foods.

Where teens choose to eat out affects the food choices available to them. It's a lot easier to follow the Dietary Guidelines when there is a greater selection of menu items with the opportunity to choose variety. If foods can be prepared to order, consumers have more control over the calories, fat, sugars and sodium.

While people are eating out more than ever before, many are concerned about health. Restaurants offer an expanding array of "light", "low fat" or "heart smart" menu items. Since 1997, restaurants that make these types of claims have had to comply with the definitions established by the FDA. They must also provide nutrition information upon request. However, full nutrition information is not required; only information that pertains to the particular claim. In addition, lab analysis is not required. The nutrient levels may be calculated from nutrient data bases or cookbooks (*Center for Science in the Public Interest*, http://www.cspinet.org/).

Learning Activities:

High School Level

- Introduce the topic with a *Fact or Fiction* quiz related to eating out and fast foods. Ask students to identify the statement as fact or fiction related to eating foods at a restaurant. Discuss responses.
- Discuss the appropriate serving sizes references using the *Seven Ways To Size Up Your Servings* (see reference list). Ask students to develop rhymes or hints to help them remember each serving size reference. Use food models or actual servings of food for student to visualize the amount of a serving. Discuss the difference between a portion and a serving:
  * Serving – the amount recommended by MyPyramid
  * Portion – the amount of food you choose to eat at any one time
- Ask students to read the suggestions, "Tips for Eating Healthy When Eating Out" (www.mypyramid.gov/tips_resources/eating_out_print.html). Ask them to make a list of suggestions for reducing fat, calories, sodium and sugar when ordering at a restaurant using the *Tips for Eating Out That Don't Cost a Dime* handout. If possible, provide menus from local eating establishments.
- Ask students to complete the *Fast Takes Scenario* from the *Assessment Strategies for Family and Consumer Food and Nutrition National Standards* (see reference list).
- Using actual menus from local restaurants, ask students to choose menu items that reflect healthy food choices by placing their menu item choices in a blank *MyPyramid* (www.mypyramid.gov/). Next, ask them to make a nutritional analysis of the food items using a website, computer software or nutrition text information. Compare their meal to recommended dietary guidelines for calories, fat, sodium, sugar, iron and calcium.

Extended Learning Activities

- **Portion Size Posters –** Create portion size posters to place around the school to assist students in recognizing how the recommended portion sizes for various foods compare to what they are eating. Students could also make posters comparing restaurant portion sizes with MyPyramid recommendations.

FACT or FICTION?

1. All fast foods are "junk" foods.
2. Many fast-food menu items are high in sodium.
3. Fried fish and chicken sandwiches are lower in fat than hamburgers
4. Salad bar selections provide more nutrients and fewer calories than other restaurant entrees.
5. Many restaurants serve portions large enough to include the total daily requirements indicated at MyPyramid.gov
6. Vegetables are always a good low-calorie menu choice.
7. Croissants and biscuits are much higher in fat than other bread choices.
8. Salad dressings are often high in sodium and fat as well as calories.
9. Catsup, mustard and pickles are good low-sodium, low-fat condiment choices.
10. Unlike health claims on food labels, claims on menu items are not regulated by the FDA.

FACT or FICTION?

Answer Key

1. All fast foods are "junk" foods. Fiction
   Some fast food restaurants offer salads, low calorie dressings, etc. Milk is offered as an alternative to soda, etc.

2. Many fast-food menu items are high in sodium. Fact
   One plain cheeseburger has approximately 635 mg of sodium which is 26% of the recommended daily value
   From: www.thecaloriecounter.com

3. Fried fish and chicken sandwiches are lower in fat than hamburgers. Fiction
   A fish sandwich with tartar sauce has approximately 28 gms of fat – 35% of the recommended daily value; A plain chicken sandwich has 30 gms of fat – 46% of the recommended daily value.
   From: www.thecaloriecounter.com

4. Salad bar selections provide more nutrients and fewer calories than other restaurant entrees. Fiction
   The American Dietetic Association reports that salads are "a main source of dietary fat for many women. Some salad bar items are very high in fat and calories - an avocado has five times the calories as shredded carrots and that two tablespoons of dressing can add as many as 160 calories to your salad

5. Many restaurants serve portions much larger than the recommended serving sizes from MyPyramid.gov Fact
   Some restaurant portion sizes have increased as much as 200-800% since just a few decades ago!
   From: www.extension.iastate.edu/nutrition/portions/

6. Vegetables are always a good low-calorie menu choice. Fiction – it depends on how the vegetables are prepared. Fresh veggies are low in calories but deep fried veggies such as

French fries, onion rings and others are not.

7. Croissants and biscuits are much higher in fat than other bread choices. Fact
   One large croissant – 14 grams of fat
   One biscuit – 12 grams of fat
   One slice whole grain bread – 1 gram of fat
   From: www.thecaloriecounter.com

8. Salad dressings are often high in sodium and fat as well as calories. Fact
   Examples:
   *1 tbs. Thousand Island dressing has 58 calories and 50 of those are from fat content
   * 1 tbs. blue cheese dressing has 78 calories and 71 come from fat
   From: www.thecaloriecounter.com

9. Catsup, mustard and pickles are good low-sodium, low-fat condiment choices. Fiction
   Catsup and mustard are low in sodium but pickles are not. – one medium dill pickle has 835 mg of sodium
   From: www.thecaloriecounter.com

10. Unlike health claims on food labels, claims on menu items are not regulated by the FDA. Fiction

Claims that promote a nutrient or health benefit must meet certain criteria established by FDA and the U.S. Department of Agriculture; for example, the food must provide a requisite amount of the nutrient or nutrients referred to in the claim. In addition, a menu item carrying a health claim must provide significant amounts of one or more of six key nutrients, such as vitamin C, iron or fiber, and cannot contain a food substance at a level that increases the risk of disease or health condition. For example, a restaurant meal that contains 26 grams of fat (40 percent of the Daily Value for fat) or 960 milligrams of sodium (40 percent of the Daily Value for sodium) is disqualified from making a heart- healthy claim. From: www.fda.gov/fdac/features/1997/497_menu.html

Tips for Eating Out That Don't Cost A Dime!

Tips for reducing calories:

Tips for reducing sodium:

Tips for reducing fat:

Tips for reducing sugar:

Tips That I Would Use:

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning Meals

Grade Levels: 7-12

Concept: *MyPyramid* - **NEW**

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.1. Apply various dietary guidelines in planning to meet nutrition and wellness needs

LESSON COMPETENCIES

- Identify the food groups and recommendations of *MyPyramid*
- Establish personal calorie/energy needs based on the recommendations from the USDA in developing *MyPyramid*
- Plan meals using *MyPyramid*

Anticipated Behavioral Outcomes:

- Students follow the recommendations of *MyPyramid* when making food choices.

Resources Needed:

- *Computer access to use the MyPyramid.gov* website (www.mypyramid.gov/)
- Copies of the *MyPyramid Word Search* downloadable at http://fycs.ifas.ufl.edu/pyramid/youth.htm
- Download the PowerPoint presentations identified in the reference section

References for teachers and students:

The primary resource that should be used by nutrition educators is the USDA website focused on *MyPyramid* (www.mypyramid.gov/). This site provides information on the foundation for *MyPyramid*, tips and resources for using *MyPyramid*, related links for using *MyPyramid* to meet personalized needs and more. Go to the section for "Professionals". Click on "Getting Started" for more background on *MyPyramid*. The education framework also provides excellent background information. The site has a downloadable PowerPoint presentation. The slide show details the background and development of *MyPyramid* and is organized into three sections: "Development of *MyPyramid* food intake patterns", "development of *MyPyramid* consumer messages and materials", and" using *MyPyramid* materials". It is 61 slides long so provides good background for adults but consider modification if you want to use with a younger audience. The *Anatomy of MyPyramid* handout is also available for download.

The *Team Nutrition* site has a series of lessons on *MyPyramid* for elementary aged children, called *MyPyramid for Kids*, that could be used as part of a service learning project working with elementary students or some of the Level 3 lessons for fifth and sixth graders could be modified and adapted for use with middle school students; go to http://teamnutrition.usda.gov/resources/mypyramidclassroom.html.

The *University of Florida* has developed some educational materials for teaching youth and adults about *MyPyramid* including a *MyPyramid Word Search* http://fycs.ifas.ufl.edu/pyramid/index.htm.

The May/June 2005 issue of *Food Insight* has several articles on *MyPyramid* including: *New Dietary Guidelines and MyPyramid: Implementing Steps for a Healthier You.* It can be accessed at http://ific.org/foodinsight/2005/mj/mypyramidfi305.cfm.

The *MyPyramid* topic page at the *Food and Nutrition Information Center* has several links about the pyramid at www.nal.usda.gov/fnic/Fpyr/pyramid.html.

The *North Dakota Cooperative Extension Service* has several downloadable PowerPoint presentations on *MyPyramid* and each of the sections of the pyramid available at their website: www.ext.nodak.edu/food/mypyramid/. These slide shows are brief and concise and appropriate for youth.

A *MyPyramid PowerPoint* is available from the *University of Nebraska Cooperative Extension Service* at http://lancaster.unl.edu/food/mypyramid-calorie-salary.htm.

The *Glencoe-McGraw Hill* (www.glencoe.com) website has many supplemental activities for teaching nutrition and fitness. One article, *Using MyPyramid at Any Age,* provides a background on *MyPyramid* and an activity using the *MyPyramid* website. It can be accessed at http://glencoe.com/sites/common_assets/familyconsumser/article/articleList.php?disciplineId=6

The *University of Arkansas Cooperative Extension Service* website has a wealth of handouts and reproducible downloads that could be used in the classroom at www.arfamilies.org/health_nutrition/nutrition/mypyramid.htm; the site includes a reproducible of a "cut and fold" *MyPyramid* that could be used as a table tent.

The *Dairy Council of California* has developed an interactive *MyPyramid Match Game* that can be accessed at www.dairycouncilofca.org/activities/pyra_main.htm.

Background Information:

MyPyramid (www.mypyramid.gov/) was introduced in April of 2005 and replaced the *Food Guide Pyramid* introduced in 1992. *MyPyramid* is part of an overall food guidance system that emphasizes the need for a more individualized approach to improving diet and lifestyle. *MyPyramid* incorporates recommendations from the *2005 Dietary Guidelines for Americans* released by the *U.S. Department of Agriculture* (USDA) and *U.S. Department of Health and Human Services* (HHS) in January of 2005. The *Dietary Guidelines for Americans* provide authoritative advice for people two years of age and older about how proper dietary habits can promote health and reduce the risk of major chronic diseases. *MyPyramid* was developed to carry the messages of the dietary guidelines and to make Americans aware of the vital health benefits of simple and modest improvements in nutrition, physical activity and lifestyle behavior. (www.mypyramid.gov)

The *MyPyramid* symbol is meant to encourage consumers to make healthier food choices and to be active every day. The *MyPyramid* symbol represents the recommended proportion of foods from each food group and focuses on the importance of making smart food choices in every food group, every day. Physical activity is a new element in the symbol. The messages in the *MyPyramid* symbol are physical activity, variety, proportionality, moderation, gradual improvement and personalization. Consumers can get more in-depth information from the new Web site, MyPyramid.gov, so that they can make these choices to fit their own needs.

NOTE TO TEACHER: Be sure to thoroughly explore the *MyPyramid* website to identify all of the resources that you might use in teaching this concept with your students.

Learning Activities:

Middle School Level

- View the PowerPoint slide presentation *Introducing MyPyramid,* available for download at: www.ext.nodak.edu/food/mypyramid/ The "Anatomy of *MyPyramid"* handout could be used in conjunction with the slide show. See resource list.
- Have students visit *MyPyramid* and explore how it was developed by having students tour *MyPyramid* at the website www.mypyramid.gov; click on the "Tour *MyPyramid"* link.
- Have students personalize their food and calorie needs by completing their personalized *MyPyramid* plan by clicking on the "*MyPyramid* Plan" link. When students have entered their data, ask them to print out their plans.
- Ask students to use the "Pyramid Tracker" sheet to tally their food choices for one day and compare to the *MyPyramid* recommendations
- Have students create illustrated posters promoting the six steps to a healthier you that are a part of *MyPyramid* – "Make half your grains whole", "Vary Your Veggies", "Focus on Fruits", "Get Your Calcium-rich Foods" "Go Lean with Protein" and "Find your Balance between Food and Physical Activity". Place the posters in the school lunchroom, school library and other locations around the school.
- Ask students to create a *MyPyramid* Plate Collage by using paper plates divided with the *MyPyramid* recommendations – half plate of fruits and veggies, one-fourth with meats and beans and one-fourth grains by locating and clipping pictures of food items from magazines or newspapers or use food models to make either an individual collage or a large classroom collage.
- Hold a Pyramid Relay by dividing students into teams. Students pull food items or pictures of food items from a bag. They must run across the room a designated distance to a *MyPyramid* on the floor or wall and tape the item to the correct place on the pyramid. They run back and tap the next person to go. First place goes to the team who placed the most items on *MyPyramid* correctly. Review the correct placement of all items with students when the relay is finished. (Adapted from Connecticut's *Team Nutrition* Program.)

- Play "Healthy Hopscotch". Set up a hopscotch board/outline and write a name of one food group in each square. A player throws a beanbag or other small marker onto a square. Before the player hops, he/she must name a food from that food group. The player continues from square to square, naming foods for the indicated food group until the course is completed. If an incorrect answer is given, the player gets a second chance.
- Ask students to create a "Favorite Fruit or Veggie" collage. Create a collage/poster with pictures and words representing a favorite food from *MyPyramid* in the many forms that it is available in. For example, if the student's favorite is a tomato, pictures could include tomato soup, tomato juice, spaghetti sauce, ketchup, pizza, tacos, fresh tomato, etc.
- Have students complete the "*MyPyramid* Word Search" (http://fycs.ifas.ufl.edu/pyramid/adobe/mpwordsearch.pdf); for each word in the Word Search, ask students to discuss how it relates to *MyPyramid* or write a sentence using the word including its relationship to *MyPyramid*.

  NOTE TO TEACHER – Download the Word Search and make copies at http://fycs.ifas.ufl.edu/pyramid/youth.htm

High School Level

- View the PowerPoint slide presentation *Introducing MyPyramid,* available for download at: www.ext.nodak.edu/food/mypyramid/ The "Anatomy of *MyPyramid"* handout could be used in conjunction with the slide show. See resource list.
- Have students visit *MyPyramid* and explore how it was developed by having students tour *MyPyramid* at the website www.mypyramid.gov; click on the "Tour *MyPyramid"* link.
- Have students personalize their food and calorie needs by completing their personalized *MyPyramid* plan by clicking on the "*MyPyramid* Plan" link. When students have entered their data, ask them to print out their plans.
- Ask students to use the "Pyramid Tracker" sheet to tally their food choices for one day and compare to the *MyPyramid* recommendations.

Extended Learning Activities:

- Have students create skits promoting the six steps to a healthier you that are a part of *MyPyramid* – "Make half your grains whole", "Vary Your Veggies", "Focus on Fruits", "Get Your Calcium-rich Foods" "Go Lean with Protein" and "Find your Balance between Food and Physical Activity", and/or "Five A Day" Present the skits to elementary school students or students enrolled in after school programs. This could be used as an FCCLA Student Body project.
- **Literacy/Language Arts –** Start a book club for elementary students or students enrolled in after school programs with each book focusing on healthy food choices and the preparation of a healthy snack. For a list of books, visit this website: http://outreach.missouri.edu/fnep/childrensbooks.htm.

Academic Connections

- ✓ **Social Studies and Language Arts** - Explore the history of food guides issued by the United States government; research the historical events occurring at the time in the United States that contributed to the development of each plan. www.nal.usda.gov/fnic/history/index.html
- ✓ **Literacy/Language Arts –** Start a book club for elementary students or students enrolled in after school programs with each book focusing on healthy food choices and the preparation of a healthy snack. For a list of books, visit this website: http://outreach.missouri.edu/fnep/childrensbooks.htm. The book list provides a summary and recommended ages for each book.

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning, Selecting, Storing, Preparing and Serving Food

Grade Levels: 7-12

Concept: Kitchen Safety

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.2 Select, store, prepare and serve nutritious and aesthetically pleasing foods that meet the health and wellness needs of family members based on available resources

LESSON COMPETENCIES

- Identify safety hazards in the kitchen
- Demonstrate safe practices while working in the kitchen
- Discuss what to do in case of common kitchen accidents

Anticipated Behavioral Outcomes:

- Students demonstrate safe practices when working in home or food service kitchens.

Resources Needed:

- Video on Kitchen Safety (one is suggested below in reference list)
- Copies of handouts for each student

References for teachers and students:

Byrd-Bredbenner, C. (2007). *Adventures in Food and Nutrition.* Goodheart-Willcox Publishing, Tinley Park, IL www.goodheartwillcox.com Chapter 8 Play It Safe!

Texas Tech University, Iowa State University and University of Wisconsin-Stout (September, 2001). *Assessment Strategies for Family and Consumer Food and Nutrition National Standards.* Funded by the USDA, Cooperative State Research, Education and Extension Service and Higher Education Challenge Grants. Available from The Curriculum Center for Family and Consumer Sciences, Texas Tech University, Box 41161, Lubbock, TX 79409-1161, Phone 806-742-3029. Request Item #4500. Cost is $20.00 + $5.00 shipping and handling.

Videos *Kitchen Safety* and *Kitchen and Food Safety* are good videos presented from the food service industry perspective and the home kitchen. Order from Meridian Education Corporation, P.O. Box 911, Monmouth Jct., NJ 0885-0911. Phone: 1-800-727-5507 (www.meridianeducation.com)

NEW – The *Food Safety: From Farm to Table* (http://foodsafety.cas.psu.edu/nie/nie.html) site has several lesson plans on food safety including safety on the farm, in food processing, food preparation at homes and restaurants; sample exams are also provided.

Background Information:

Each year, thousands of people are injured, become ill or are killed because of dangerous safety and sanitation practices in the kitchen. Most of these accidents could have been prevented if those involved practice appropriate kitchen safety and sanitation practices.

The main causes of accidents are falls, fires, burns, chemicals and electrical shocks.

Learning Activities:

Middle School Level

- Introduce the topic of kitchen safety with a Kitchen Safety Scavenger Hunt. Set up one of the kitchens with several kitchen hazards (for example, paring knife in sink, cupboard door open, etc.); ask students to identify as many hazards as possible. Discuss why each could lead to a kitchen accident
- Show a video on kitchen safety for students (see reference list for suggested video)
- Complete the activity *What's the Problem?* Discuss answers with students when they have completed the assignment.
- Working independently or in teams of two, have students research and make mini presentations on expanded topics in the area of kitchen safety. Possible topics: cuts, falls, fires, burns, poisons, care of utensils, etc. Present to class.
- Complete a post-test, *Kitchen Safety Test*. Student must pass with 100% accuracy to demonstrate competency before involvement in kitchen laboratory experiences.

High School Level

- Review kitchen safety practices by asking student to develop a Top Ten list of appropriate kitchen safety and sanitation practices.
- Research appropriate kitchen safety and sanitation practices and develop a kitchen safety and sanitation document (poster, booklet, pamphlet, PowerPoint, etc.) appropriate for training food service employees. Follow the guidelines from the Actions Based Learning Research Project (pp. 255) in the *Assessment Strategies for Family and Consumer Food and Nutrition National Standards*. (see reference list) A scoring rubric and questions for reflection are provided.

Extended Learning Activities:

- Ask older students to train younger students on appropriate kitchen safety and sanitation practices.
- Kitchen Safety Puppet Show – **Create a puppet show on kitchen safety to present to younger children. Present to preschool, kindergarten or elementary school children or after school care participants.**

What's The Problem?

Name _____

Directions: Read each scenario described below. If the scenario requires no changes, check "No Problem!" If the scenario presents an unsafe kitchen practice, suggest what should be done to address the problem.

1. Rick is making a pizza for supper. The timer goes off; Rick grabs a kitchen towel to remove the pizza from the oven.

   _____ No Problem!
   _____ There's a problem here! Rick should:

2. Amy loves a toasted bagel with cream cheese for breakfast. She likes to wait for them to cool slightly before using a fork to remove the bagel from the toaster.

   _____ No Problem!
   _____ There's a problem here! Amy should:

3. Tim uses cleanser to clean the sink after washing dishes. He puts the cleanser under the sink and locks the safety latch on the door.

   _____ No Problem!
   _____ There's a problem here! Tim should:

4. Emily wants to add some sliced onion to the salad she is making. She holds the onion in her hand and cuts toward her to slice off the onion.

   _____ No Problem!
   _____ There's a problem here! Emily should:

5. While Paul is frying some hamburger for chili, a small fire breaks out. Paul quickly gets a glass of water to put out the fire.

   _____ No Problem!
   _____ There's a problem here! Paul should:

6. Jose broke a measuring cup while preparing muffins for his family. He cleaned it up with a dishcloth to protect his hands.

_____ No Problem!
_____ There's a problem here! Jose should:

7. Kareesha just finished using the kitchen mixer in preparing a cake mix. She pulls on the cord to unplug it with her wet hands.

   _____ No Problem!
   _____ There's a problem here! Kareesha should:

8. Ned is boiling water to make macaroni and cheese. He keeps the handle of the pan facing the front of the stove so it will be easy to remove when it is time to drain the macaroni.

   _____ No Problem!
   _____ There's a problem here! Ned should:

9. Jamie is picking out a new kitchen rug as a gift for her Mom. She chooses one with a non-skid backing.

   _____ No Problem!
   _____ There's a problem here! Jamie should:

10. Katie and Keith are cleaning up after their family's supper. Katie drops the paring knife into the dishwater as she cleans off the counter.

    _____ No Problem!
    _____ There's a problem here! Katie should:

What's The Problem?- Answer Key

Name _____

Directions: Read each scenario described below. If the scenario requires no changes, check "No Problem!" If the scenario presents an unsafe kitchen practice, suggest what should be done to address the problem.

1. Rick is making a pizza for supper. The timer goes off; Rick grabs a kitchen towel to remove the pizza from the oven.

   _____ No Problem!
   ___X___ There's a problem here! Rick should: use a pot holder or oven mitt to remove the pizza – a towel can easily catch on fire.

2. Amy loves a toasted bagel with cream cheese for breakfast. She likes to wait for them to cool slightly before using a fork to remove the bagel from the toaster.

   _____ No Problem!
   ___X___ There's a problem here! Amy should: unplug the toaster and remove the bagel by tipping the toaster; a fork should not be used as it may cause a shock

3. Tim uses cleanser to clean the sink after washing dishes. He puts the cleanser under the sink and locks the safety latch on the door.

   ___X____ No Problem!
   _____ There's a problem here! Tim should:

4. Emily wants to add some sliced onion to the salad she is making. She holds the onion in her hand and cuts toward her to slice off the onion.

   _____ No Problem!
   ____X___ There's a problem here! Emily should: use a cutting board for slicing the onion and slice down, away from her body, toward the cutting board.

5. While Paul is frying some hamburger for chili, a small fire breaks out. Paul quickly gets a glass of water to put out the fire.

   _____ No Problem!
   ____X___ There's a problem here! Paul should: use a lid to the pan to smother the fire or use baking powder or salt to smother the fire.

6. Jose broke a measuring cup while preparing muffins for his family. He cleaned it up with a dishcloth to protect his hands.

____X____ No Problem!
_____ There's a problem here! Jose should:

7. Kareesha just finished using the kitchen mixer in preparing a cake mix. She pulls on the cord to unplug it with her wet hands.

_____ No Problem!
____X____ There's a problem here! Kareesha should: dry her hands before unplugging the mixer to avoid an electrical shock.

8. Ned is boiling water to make macaroni and cheese. He keeps the handle of the pan facing the front of the stove so it will be easy to remove when it is time to drain the macaroni.

_____ No Problem!
____X____ There's a problem here! Ned should: keep the pan handle turned toward the back of the stove; if someone were to walk by with the handle turned toward the front, the pan of boiling water could be spilled.

9. Jamie is picking out a new kitchen rug as a gift for her Mom. She chooses one with a non-skid backing.

____X____ No Problem!
_____ There's a problem here! Jamie should:

10. Katie and Keith are cleaning up after their family's supper. Katie drops the paring knife into the dishwater as she cleans off the counter.

_____ No Problem!
____X____ There's a problem here! Katie should: place the paring knife on the counter near the sink and wash it separately so that no one is cut by the blade.

Kitchen Safety Test

Name _____

Part A. Multiple Choice. Choose the correct answer to each question or that correctly completes the phrase. Place the letter corresponding to the answer in the blank in front of each question or phrase.

_____ 1. Major causes of kitchen accidents include all of the following EXCEPT:

A. Burns from hot grease
B. Cuts from dull knives
C. Paper cuts
D. Slipping on wet floors

_____ 2. Which of the following safety procedures can help prevent burns?

A. Filling containers of hot liquid to the top
B. Lifting covers away from face to let steam escape
C. Turning pan handles towards the edge of the stove
D. Wearing loose-fitting clothes

_____ 3. Hot fat may splatter and cause burns on hands and face IF:

A. drops of water get into it
B. a liquid fat is used
C. too little fat is used in hot pan
D. you remove a lid too quickly

_____ 4. The best reason for pinning long hair back away from the face is:

A. it may catch on fire
B. it may get in the food
C. it looks better
D. it is easier to work

_____ 5. Remove hot pans from the oven with:

A. a dishcloth
B. a pot holder or mitt
C. a dishtowel
D. any of the these are safe to use

_____ 6. When plugging a cord into an appliance, you should:

A. plug the cord into the outlet, then into the appliance
B. plug the cord into the appliance, then into the outlet
C. plug the cord into the appliance and the outlet at the same time
D. any of these are safe practices

_____ 7. If food cooked on the stove catches fire, you should:

A. throw water on it
B. carry the flaming pan to the sink
C. put the fire out with an extinguisher or throw salt or baking soda on it
D. either A or B

_____ 8. When cleansing kitchen counters, to kill the most strains of bacteria, it is best to use:

A. hot soapy water
B. baking soda and water
C. bleach and hot water
D. all of the above are equally effective

_____ 9. When slicing tomatoes for a salad, which of the following is NOT a safe kitchen practice:

A. slice the tomatoes on a cutting board
B. slice away from the body
C. place the knife in the sink when finished using it
D. use a sharp knife

_____ 10. Slips and falls can best be prevented by:

A. wearing closed toes shoes
B. using rugs that have a non-skid backing
C. watching where you are going
D. none of these practices will help prevent slips and falls

Part B. Short Answer. Describe what you should if practicing appropriate kitchen safety do in each situation.

11. What should you do if there is broken glass on the floor?

12. What are three ways to safely extinguish a grease fire?

13. What is the first thing you should before removing something from or cleaning a kitchen appliance?

14. What is the proper technique to follow when lifting a heavy object?

15. Name 2 items that should be in a kitchen as a part of safe kitchen practices.

Kitchen Safety Test Answer Key

Part A. Matching

1. **C**
2. **B**
3. **A**
4. **B**
5. **B**
6. **B**
7. **C**
8. **C**
9. **C**
10. **B**

Part B. Short Answer

11. **use a wet cloth to pick up the pieces**

12. **use a fire extinguisher**
    cover the pan with a lid
    use baking soda or flour to extinguish the flames

13. **unplug the appliance**

14. **bend at your knees and use your legs to lift**

15. **fire extinguisher or fire blanket**
    first aid kit

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning Food to Meet Nutritional Needs

Grade Levels: 7-12

Concept: Meal Planning/Management

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.2 Select, store, prepare and serve nutritious and aesthetically pleasing foods that meet the health and wellness needs of family members based on available resources

LESSON COMPETENCIES

- Plan meals following *MyPyramid* (www.mypyramid.gov/) and the *Dietary Guidelines for Americans* (www.health.gov/dietaryguidelines/)
- Plan meals that are nutritious and appealing
- Identify other factors that individuals and families must consider when making meal plans.

Anticipated Behavioral Outcomes

- Students plan nutritious and appealing meals when eating at home or selecting foods away from home.

Resources Needed:

- Access to *MyPyramid* (www.mypyramid.gov) website, brochures or printed reference
- Copies of handouts for all students

References for teachers and students:

Byrd-Bredbenner, C. (2007). *Adventures in Food and Nutrition.* Goodheart-Willcox Publishing, Tinley Park, IL www.g-w.com Chapter 11, What's on the Menu?

NEW The *New York Times* has an archive of lesson plans with related news articles. Check out these lesson plans for use in this area:

Mmmm, Mmmm ...and Good
www.nytimes.com/learning/teachers/lessons/20041124wednesday.html
Creating a Supermarket Proposal Based on Healthy Food Options
In this lesson, students will consider their own diets and examine an op-ed article about organically produced foods. They then research alternatives to various foods for the creation of a supermarket and reflect on their own diets after keeping a food journal. (November 24, 2004)

Background Information:

- The new *MyPyramid* (www.mypyramid.gov/) and the *Dietary Guidelines for Americans* (www.health.gov/dietaryguidelines/) are important tools to assist us when planning meals. However, there are many other factors that need to be considered to plan meals appropriate and appealing for everyone who will be eating.

When planning meals, you need to consider the following:
- Who will be eating? (ages, special diets, food allergies, etc.)
- When will you be eating?
- Where will you be eating? (family kitchen, picnic in park, camper, etc.)
- What foods do you have available or could have available? (seasonal foods, what foods you have on hand, etc.)
- Why are you eating? (to celebrate a birthday? A family supper?)

Meals should also be planned considering:
1. Variety of
   - colors
   - shapes and sizes
   - temperatures
   - flavors
   - textures
   - preparation methods
2. Equipment and facilities available
3. Skills of individual preparing the food
4. Time available
5. Nutrition (using *MyPyramid* (www.mypyramid.gov/) and the *Dietary Guidelines for Americans* (www.health.gov/dietaryguidelines/)
6. Budget
7. Family Values (economy, health, home-prepared food, etc.)

Learning Activities:
Middle School Level

- Using paper plates and the food models or laminated pictures of food, arrange the foods on a plate as they would be served together at a meal. Plan two meal plans which show a contrast in each of the following areas:
  - **color (**For example, Meal Plan 1 – Baked Halibut, Mashed Potatoes with Butter, Cauliflower, Pear Sauce, White Bread and Milk and Meal Plan 2 – Pork Chop, Baked Potato with Sour Cream & Chives, Green Beans, Sliced Strawberries, Whole Wheat Dinner Roll and Milk
  - **texture**
  - **taste/flavors**

  Discuss the following with students:
  - Which of these 2 meals looks more appealing? Why?
  - How does the appearance of a meal impact your response to it?
  - Do both meals have foods recommended in *MyPyramid* (www.mypyramid.gov/)? Name which food fits into each group.

- In addition to selecting foods using *MyPyramid* (www.mypyramid.gov/) what other factors should be considered when planning a meal? List responses on the board and discuss. Guide discussion to include factors discussed in the background information

- **NEW** Have students visit *MyPyramid* (www.mypyramid.gov/) to determine their individual plan referred to as "*MyPyramid* Plan" (www.mypyramid.gov/mypyramid/index.aspx) based on their individual characteristics.
- Have students become a *"Diet Designer"*. Develop a meal plan for the family described on this handout for one day and by considering all factors to consider in meal planning discussed in this lesson by completing the *Diet Designer* activity

NOTE TO TEACHER: Students need to complete the "*MyPyramid* Plan" (www.mypyramid.gov/mypyramid/index.aspx) activity before moving on to the Diet Designer activity.

High School Level

- Modify an existing menu to meet the special needs of individuals by completing a "Menu Makeover activity". **NOTE TO TEACHER:** You will need to provide a menu/meal plan for each student AND a special need of a family member for them to consider as they complete the "makeover" of the menu/meal plan.
- Using an assigned budget for a family, plan 3 days of menus that fit within the assigned budget. Use a variety of income levels by referring to the information in Unit 1 on Food Security/Hunger.
- Students conduct an analysis of their food choices related to *MyPyramid* (www.mypyramid.gov/) by completing the *How Does Your Diet Rate?* activity.

Extended Learning Activities

***School Menu Plans –** Meet with the cooks in your school and interview them. Ask what factors they need to consider when making meal plans for a school week. Ask what government guidelines they are required to consider, etc. Ask if you could help plan the menus for one week by meeting with them.

Diet Designer

Name _____

Your Mom has asked you to assist her with the meal planning this week. She is going to be out of town on Thursday and she wants you to plan the meals for Thursday for you, your sister and your Dad that day. You will be responsible for preparing the meals including packing a sack lunch for each of you.

As you "design" this daily meal plan, consider MyPyramid, as well as the other considerations for meal planning discussed in class. Write out your meal plan in the table below and indicate the cups or ounces from MyPyramid that would be provided by your choices. Begin by inserting the recommendations from MyPyramid Plan for you in the spaces provided in row one.

Meal Plan	**Grains** _____ _	**Vegetables** _____ _	**Fruits** _____ _	**Dairy** _____ _	**Meat** _____ _	**Extras Eat Sparingly**
BREAKFAST						
LUNCH						
DINNER						
SNACK						

Let's take a closer look at your dinner menu. Rate the dinner menu on the following criteria on a scale from 1-5 with 1 indicating that the meal could use some improvement in this area and 5 indicating that the meal is excellent in that category! Circle your rating and write comments to justify your rating

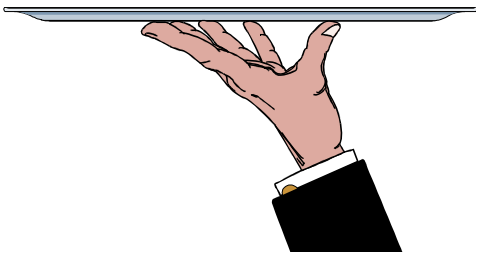
Variety of color 1 2 3 4 5
Comments to justify rating:

Variety of texture 1 2 3 4 5
Comments to justify rating:

Variety of sizes and shapes 1 2 3 4 5
Comments to justify rating:

Time to prepare 1 2 3 4 5
Comments to justify rating:

Easy to prepare 1 2 3 4 5
(items you have the skills to prepare)
Comments to justify rating:



How Does Your Diet Rate?

Name _____

Directions: Complete the steps below as directed to determine how your diet matches with the recommendations of your personalized version of *MyPyramid* (www.mypyramid.gov/).

Step 1. Food Log

List all of the foods that you had to eat yesterday (be sure to include snacks, condiments, glasses of water, etc.) and the approximate of each.

Foods I Ate Yesterday_____Amount Consumed **Grams of Fat**

*
*
*
*
*
*
*
*
*
*
*
*
*
*
*
*
*

Step 2. Using references provided by your teacher, identify the number of grams of fat in each food. Add to the food log above.

Step 3. Answer these questions:

1. Did you have the amount recommended for you from the *MyPyramid* plan (www.mypyramid.gov/)? (refer to *My Pyramid* reference)

	State the Amount Recommended	Amount You Had
For You_____		
Grain Group	_____	_____
Vegetable Group	_____	_____
Fruit Group	_____	_____
Milk Group	_____	_____
Meat Group	_____	_____

2. a. Convert the grams of fat you consumed to teaspoons using the "Gram Conversion Calculator" found at http://www.gourmetsleuth.com/gram_calc.htm

I consumed _____ grams of fat beyond those allowed in my personal MyPyramid plan and that is equal to _____ teaspoons of fat.

b. Complete the table below.

	Teaspoons Recommended for You	Amount You Had
Fat	_____	_____

c. Calculate the number of calories from fat you consumed using this formula provided by USDA:

1 teaspoon of fat has 45 calories

Calories from fat that I consumed were _____ calories

3. Estimate the amount of added sugars you ate. (sugar, pop, desserts, ketchup, etc.)

Sugars _____ teaspoons of sugar

Calculate the number of calories of sugar you consumed using these formulas provided by USDA:

1.0 cup of sugar has 774 calories
1.0 tsp of sugar has 16 calories

Calories from sugar that I consumed are _____ calories.

4. Add the amount of calories of fat beyond those allowed in your personal MyPyramid plan and sugar that you consumed. How does this compare to the amount of discretionary calories recommended for you in MyPyramid?

Step 4. What changes could you make for a healthier diet? List 3 things you could do to improve. Start by making small changes, such as switching to low fat salad dressings or adding an extra serving of vegetables by having a small bag of carrots for a snack.

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning and Selecting Food to Meet Nutritional Needs

Grade Levels: 7-8

Concept: Nutritious Snacking

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.2 Select, store, prepare and serve nutritious and aesthetically pleasing foods that meet the health and wellness needs of family members based on available resources

LESSON COMPETENCIES

- Select appropriate snacks using the MyPyramid
- Prepare nutritious snacks

Anticipated Behavioral Outcomes:

- Students plan and prepare nutritious snacks using the MyPyramid as part of their daily food choices.

Resources Needed:

- Copies of handouts for all students
- Copies of snack recipes

References for teachers and students:

Team Nutrition, a program developed by the USDA to promote healthy eating and physical activity has several resources appropriate for middle school students. These include a Student Activity Guide and Teacher's Guide with several activities called *yoursSELF*. One activity called "Try it" with an accompanying poster "Snack Attack" provide hints for choosing snacks and two word puzzles on snacking; this can be found in the student workbook. Several can be downloaded for free from the teachers guide at their website or ordered at the site. The address is http://teamnutrition.usda.gov/Resources/yourself.html

Smart Snacks, an article available at the NcKinley Health Center website at www.mckinley.uiuc.edu/Handouts/snacks_smart.html

Byrd-Bredbenner, C. (2007). Adventures in Food and Nutrition. Goodheart-Willcox Publishing, Tinley Park, IL Available for purchase at www.g-w.com Chapter 14 When You're on the Go

Easy, healthy snack ideas are included in the *Healthy Snack Guide* fact sheet from the Food and Health Communications; available for purchase at the website at www.foodandhealth.com; additional resources are available as free downloads.

NEW The Nebraska Cooperative Extension Service has an excellent, very current brochure entitled *It's Snack Time!* Link to it directly at www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=475

NOTE TO TEACHER: remember these snacks are for all ages and some are high calorie and contain added sugar.

NEW – the Kids Health website (http://kidshealth.org) has an article, *Smart Snacking*, with tips for choosing healthy snacks for teens.

NEW – The Smart-Mouth website (http://cspinet.org/smartmouth/index1.html) is a fun website with snacktoid facts, recipes, video clips and games.

NEW A great site for snack ideas and recipes is found at the website, *Iowa State University Cooperative Extension Service* (www.extension.iastate.edu/healthnutrition) in several publications, *Snack and Act Ideas* (www.extension.iastate.edu/food/snackandact/index.htm) with nutritious snack recipes for every week of the year, the site also has list of ideas for including fruit and fruit recipes as snacks, *Shake Up Your Snacks* (http://www.extension.iastate.edu/food/shakeup/).

Background Information:

Snacks can be an important part of a healthful diet especially for children and adolescents. Well-chosen snacks can help them manage weight, hunger, health and energy needs.

Snacking should be planned to complement other food choices. Rather than thinking of them as "extras", snacks should be chosen to contribute to food-group servings from MyPyramid.

The *American Dietetic Association* (2006) (www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_8377_ENU_Print.htm) offers the following smart snacking tips:

- Plan ahead. Bring fruit, vegetables or other healthful snacks with you.
- Snack consciously. Paying attention to what you are eating can help you avoid overindulging. Try to eat a snack without doing anything else.
- Choose nutrient-rich foods such as fruits and vegetables. They contain the most nutrients, bite for bite.
- Watch for fat and calories. Read snack food labels to make sure you are not eating more calories and fat than you think.

Learning Activities:

Middle School Level

- Ask students to make a list of their favorite snacks. Identify where each snack fits on *MyPyramid* (www.mypyramid.gov). Is the "shape" of their snack pyramid similar to that of *MyPyramid*?

  NOTE TO TEACHER: You could draw a large MyPyramid on the board and ask students to write the names of their favorite snacks in the appropriate food group; check to see if the class choices indicate a balance from the food groups.
- Review the guidelines for healthy snacking form the *American Dietetic Association* (www.eatright.org/cps/rde/xchg/ada/hs.xsl/index.html) (see

background info) and/or review the snacktoid tips found on the "Snack Attack" poster from the Team Nutrition materials (see reference list).

- Make posters of snacking tips for children, adolescents and parents to post at the school, the library, day care centers, etc.
- Individually or in groups of two, ask students to complete the *Snack Attack Planning for Healthy Snacking* activity. When students have completed their choices, discuss why they chose the snacks and where they would fit in *MyPyramid*.
- Prepare simple nutritious snacks. Have students make a nutrition label for each snack using resources provided. A sample is included, *"Berry Good Smoothie"*

Extended Learning Activities

- **Snack Attack Recipe Book –** Compile a recipe book with recipes for low fat, nutritious snacks from MyPyramid that are quick and easy to prepare. Include nutrition information for each recipe and identify how the snack fits into the *MyPyramid* (www.mypyramid.gov). Distribute to parents of elementary school children. **NEW** Include a "nutrition facts" panel for each recipe by using the *What's In the Food You Eat?* (www.ars.usda.gov/Services/docs.htm?docid=12096) tool or the *Nutrition Analysis Tool* (http://nat.crgq.com/) NOTE TO TEACHER – you can download this tool on your computers if you desire.
- **FCCLA Snack Store –** As part of an entrepreneurial project or fund raiser, open a Snack Attack Shop that features healthy snack choices from *MyPyramid* (www.mypyramid.gov/) such as skim or 1% milk, string cheese, whole grain crackers, whole grain pretzels, rice cakes, lean jerky, dry roasted or raw almonds, dry roasted soy nuts, whole dill pickles, fresh fruits or cut up veggies such as carrot and celery sticks, single-serve fruit or yogurt. FCCLA members should research to include foods that meet the schools wellness policy
- **Snack Attack Corner** – Submit a snack attack idea each week to the school newspaper, community newspaper or newsletter for parents of young children with ideas for healthy snacking and recipes for nutritious snacks.

Snack Attack

Plans for Healthy Snacking

Name _____

Directions: For each of the situations listed below, offer at least 3 suggestions for snacking that follow the guidelines for healthy snacking discussed in class. Also, consider how to package snacks to make them easy to pack.

1. **The Smith Family –** Rob and Katie Smith are planning a road trip to the Black Hills of South Dakota for this year's family vacation. They plan on saving money by packing food for snacks and meals. The Smith's have 2 children, Emily, age 5 and Patrick, age 3. They want to keep the car reasonably clean and therefore, avoid sticky foods. They have a small cooler for the car to pack with snacks.

   Your suggestions:

2. **Meghan Moore** – Megan Moore is 16 and on the high school volleyball team. She has practice every day at 4:30 p.m. after the JV team finishes their practice. After school, she studies in the library or hangs out with friends until practice. Meghan is usually hungry when school gets out and wants to bring some snacks with her in her backpack to eat after school.

   Your suggestions:

3. **Linda and Derek Jones** – Linda Jones is a single mom who works as a receptionist at the local real estate office. Her son, Derek, is 13. After school, he comes home and works on homework or at his computer until his mom gets home at 5:15 p.m. Linda often gets hungry mid morning and mid afternoon. She walks in the morning every day before work and again after supper but she is watching her weight. Derek is always very hungry when he gets home from school but Linda doesn't want him to spoil his appetite before supper.

   Your suggestions:

"Berry Good Smoothie"

Yield: 2 servings

Ingredients:

1 cup strawberries, whole frozen, unsweetened
1 cup nonfat blueberry yogurt
2 tsp. sugar
½ cup water
7 ice cubes (or more if you like it thicker)

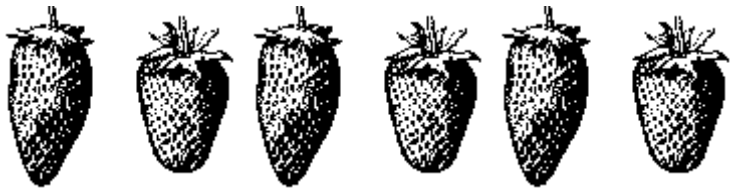
Procedure:

Place all ingredients in blender and blend until smooth.

Nutrition Analysis (per serving):

Calories	**103 calories**
Carbohydrates	**20 grams (77% of total calories)**
Protein	**5.5 grams (21% of total calories)**
Fat	**0.28 grams (2% of total calories)**
Saturated fat	**0.00 grams**
Iron	**.85 milligrams**
Vitamin C	**44 milligrams**
Calcium	**200 milligrams**

Food Guide Pyramid: ½ fruit and ½ milk per serving



Recipe Connecticut's Team Nutrition Program website www.team.uconn.edu/recipemonth.htm

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning and Selecting Food to Meet Nutritional Needs

Grade Levels: 7-12

Concept: Reading Labels – **Updated with 2006 requirements**

Comprehensive Standard: 6.3 Demonstrate planning, selecting, storing, preparing and serving of foods to meet nutritional needs of individuals and families across the life span

Technical Standard(s): 6.3.2 Select, store, prepare and serve nutritious and aesthetically pleasing foods that meet the health and wellness needs of family members based on available resources

LESSON COMPETENCIES

- Identify the parts of the food label
- Explore why foods labels are beneficial to consumers
- Compare food products using the food label
- Analyze nutrient content claims made on food labels

Anticipated Behavioral Outcomes:

- Students use food labels to compare calories, nutrient content and cost of foods when making food choices.

Resources Needed:

- Sample food labels or food packages with a food label
- One or more boxes of breakfast cereal, cereal bowls, measuring cups
- Copies of handouts for each student

References for teachers and students:

NEW In January of 2006, new food label requirements went into effect. There are two articles, *Keeping up With the Changing Food Label* (www.ific.org/foodinsight/2006/jf/foodlabelfi106.cfm) and *Making the Most of Dietary Fats Information* (www.ific.org/foodinsight/2006/jf/fatsfi106.cfm) , explaining these new changes in the January 2006 issue of *Food Insights* a publication of the *Food Information Council (IFIC) Foundation*. It can be accessed at www.ific.org/foodinsight. There is also a downloadable Power Point presentation, *New Nutrition Conversation with Consumers – About Fats in Food* (http://www.ific.org/tools/presentations.cfm) that addresses the issue of trans fats and other fats in food. Updated copies of food labels are available at *Examples of Revised Nutrition Facts Panel Listing Trans Fats* (www.cfsan.fda.gov/~dms/labtr.html) on the FDA site.

NEW - The FDA has numerous publications on food labeling and updated examples of the food label featuring the 2006 requirements for trans fats. The site also

has an interactive quiz on food labels. These publications can be accessed at www.cfsan.fda.gov/~dms/lab-gen.html One webpage to explore is *How to Understand and Use the Nutrition Facts Label* (www.cfsan.fda.gov/~dms/foodlab.html). This was updated in 2004 but does include trans fat on the nutrition facts panel.

The FDA and the International Food Information Food Council have produced an educational program on the food label as implemented in 1994 for high school students called *The New Food Label, There's Something In It For Everybody* (http://ific.org/publications/other/tnfl.cfm). The teacher's guide contains 5 lesson plans with learner outcomes, activities, handouts, worksheets and a list of references for more information. This guide is important to complete the activities described in this lesson. The 48-page booklet can be downloaded in PDF format at www.fda.gov/opacom/catalog/teachkit.html **NOTE TO TEACHER:** this teaching kit is still available but has not been updated to include the 2006 requirements – be sure to make changes/modifications before using.

A 7 ½ minute video, *The Food Label and You: Check It Out!*, is available from the FDA for $8.95. You can preview the video online and view a copy of the Leader's Guide for the video at www.cfsan.fda.gov/~lrd/labelwww.html

Students can test their food label knowledge with an interactive quiz at www.cfsan.fda.gov/~dms/flquiz1.html It is also available in PDF format at this site if you choose not to use the Internet.

NOTE TO TEACHER: **Be sure to read the latest information on food labeling before beginning this unit. The FDA website will provide the most recent updates. AND be sure to update any information that does not include the latest updates.**

Background Information:

The *U.S. Food and Drug Administration* (FDA)(www.fda.gov) , operating under the Federal Food, Drug and Cosmetic Act, regulates the labeling for all foods other than meat and poultry. The *U.S. Department of Agriculture* (USDA) (www.usda.gov/wps/portal/usdahome) under the Federal Meat Inspection Act regulates meat and poultry products.

Food labels for most of the food products sold in the United States must have the product name, the manufacturer's name and address, the amount of product in the package and a list of ingredients in the product. The ingredients are listed in descending order based on weight.

The FDA initiated new guidelines for nutrition labeling in 1994. Nutrition labeling is now required for most foods. In addition, voluntary nutrition information is now available for the 20 most frequently eaten raw fruits, vegetables and fish and the 45 best selling cuts of meat. This information comes under the FDA's voluntary point-of-purchase nutrition information program. For these foods, nutrition information can be provided on the package or posters displayed near the food. These foods are specifically identified in the article *Nutritional Info Available for Raw Fruits, Vegetables, Fish* available at www.fda.gov/fdac/special/foodlabel/raw.html

NEW – In January, 2006, new requirements for additions to the food label were made. The Nutrition Facts panel provides a mandatory listing of the total fat content, saturated fat content and as of January, 2006, the *trans* fat content of food products. Other important types of fats such as polyunsaturated fat and monounsaturated fat may be listed

voluntarily. In addition, the Food Allergen Labeling and Consumer Protection Act passed by Congress in 2004 became effective on January 1, 2006. This law requires all food labels to declare in plain English the presence of eight food allergens: milk, soy, egg, wheat, fish, crustacean shellfish, peanuts and tree nuts.

NEW – NOTE TO TEACHER: MyPyramid uses recommended amounts of foods whereas the nutrition label still refers to serving sizes. You will need to help students recognize this. A wise consumer will need to refer to the amounts recommended by MyPyramid as they read the nutrition facts label.

Also, nutrition information is required for restaurant foods about which a health or nutrient-content claims are made on restaurant menus, signs or placards [*The Food Label,* (http://www.cfsan.fda.gov/~dms/fdnewlab.html) *U.S. Food and Drug Administration*, (www.fda.gov) May, 1999].

Foods exempt from nutrition labeling include:

- food served for immediate consumption (i.e. food in cafeterias or airplanes)
- ready-to-eat food that is not for immediate consumption but is prepared primarily on site (i.e. bakery, deli and candy store items)
- food shipped in bulk, as long as it is not for sale in that form to consumers
- medical foods
- plain coffee and tea, some spices and other foods that contain no significant amounts of any nutrient

The food labels provide the following for consumers (FDA, May, 1999):

- easy to read formats that make it easy to find nutrition information
- information on the amount per serving of saturated fat, cholesterol, dietary fiber, and other nutrients of major health concern
- nutrient reference values, expressed as % Daily Values (DV)
- uniform definitions for terms that describe a food's nutrient content such as "light", "low-fat", etc.
- claims about the relationship between a nutrient or food and a disease or health-related condition, such as calcium and osteoporosis
- standardized serving sizes
- total percentage of juice in juice drinks

Learning Activities:

Middle School Level

- Remove the label from 2 similar size cans of food (i.e. green beans and spinach or tomato soup and split pea soup). Tell students that they must choose one of these products for lunch. Which would they choose? After the students have made their choices, reveal the identity of the product. Ask students if they would still choose the same product. Discuss importance of ingredient lists to consumers.
- Bring in variety of food labels and/or packages with food labels in a grocery bag; give each student a label or product or ask them to pick a label or product from the bag. Ask students to examine the nutrition facts panel on the label and then ask them to name things the nutrition facts panel on the label tells a consumer about the food inside. On the board, list the types of information students find on the panel. (Adapted from *The New Food Label: There's*

Something in It for Everybody http://ific.org/publications/other/tnfl.cfm- see resource list for access to this kit)

- Using a poster, transparency or handout, assist students in identifying the parts of the nutrition facts panel on food labels. The FDA website has several examples that could be used for this activity.
- Introduce serving size by asking one or all students to pour out the amount of breakfast cereal he/she usually eats. Ask students to guess about how much cereal is in each bowl. Ask, "Would you consider these examples to be one serving, more or less?" After guessing, ask students to pour the cereal from the bowl into a measuring cup. Measure out the amount listed as the serving size on the nutrition panel and place this amount in a bowl. Compare your "portion" with the label's "serving" size. Note that every person has a different idea of a "serving" and stress that nutrition information on the label is provided for one serving; therefore it is important that consumers know what the serving size amount is. Next, measure the amount in the bowls students poured to see how many servings are represented. Compare to amounts recommended by MyPyramid. (Adapted from *The New Food Label: There's Something in It for Everybody* http://ific.org/publications/other/tnfl.cfm). NOTE TO TEACHER: To add interest, use more than one type of cereal to see if students would take larger portions of one cereal over another. For example, provide "Corn Flakes" and "Sugar Frosted Corn Flakes" and compare differences in serving sizes, grams of sugar, calories, etc.
- Show the video, *The Food Label and You: Check it Out!* (see reference list for ordering information) Use the questions and activities included in the Leader's Guide that accompanies the video.
- Ask students to compare nutrition labels for two similar products in the activity *"Choose the Best, and Leave the Rest".* **NOTE TO TEACHER:** You will need to provide food labels or food products with the food label for this activity.
- Ask students to visit the "Rate Your Plate" interactive web-based game at http://sp.uconn.edu/~cthompso/ Students select a menu for one meal and a nutrition label for each food choice will be generated. Students could make a copy of these labels and plan a day's menu to accompany this meal which will meet 100% of the DV for each of the nutrients listed on the label.
- Ask student to create a "Top Ten" list poster for reasons why nutrition labels are important to consumers (Adapted from *The New Food Label: There's Something in It for Everybody* http://ific.org/publications/other/tnfl.cfm).

High School Level

- Remove the label from 2 similar size cans of food (i.e. green beans and spinach or tomato soup and split pea soup). Tell students that they must choose one of these products for lunch. Which would they choose? After the students have made their choices, reveal the identity of the product. Ask students if they would still choose the same product. Discuss value of labeling. Brainstorm how the food label is important to consumers.

- Show the video, *The Food Label and You: Check It Out!* (see reference list for ordering information) Use the questions and activities included in the Leader's Guide that accompanies the video.
- **NEW** Use the PowerPoint presentation *New Nutrition Conversation with Consumers – About Fats in Food* (www.ific.org/tools/presentations.cfm) to introduce information on fats, especially the info on trans fats, a new addition to the nutrition facts panel on the foods label. Ask students to read the FDA webpage article on the food label, *How to Understand and Use the Nutrition Facts Label* (www.cfsan.fda.gov/~dms/foodlab.html), a printable file is available.

- Distribute food labels and/or actual food products with the food labels on them – have the labels or food items in a grocery bag or basket and ask each student to draw an item from it. Use the activities in *The New Label, There's Something In It For Everybody* (http://ific.org/publications/other/tnfl.cfm.) described in Lesson 1: Read Any Great Labels Lately?
- Provide students with the handout, *Stake Your Claim*. Go over the terms with students and show examples of food labels stating the claims. Following this, ask students to conduct their own "Supermarket Hunt" as described in *The New Label, There's Something In It For Everybody* (http://ific.org/publications/other/tnfl.cfm). A chart is available on pg. 27 of the kit to use with this activity that is described in Lesson Plan 3: Label Talk! The activity sheet can be found in the downloaded in PDF format at www.fda.gov/opacom/catalog/teachkit.html. This activity could be a class field trip or as an assignment to be completed outside of class. Students could be assigned to work in teams of 2.

Extended Learning Activities

- **Cafeteria Clues** – Obtain a copy of the cafeteria menus for the following week from the school kitchen and nutrition personnel. Using computer software or other sources, students prepare a nutrition label for each of the menu choices and place on a placard or poster for other students to view in the cafeteria as they make their school lunch choices.
- **Vending Machine Messages** – Have students create point of purchase nutrition information to post on the outside of school vending machines. Gather information from labels on snacks sold in the machine. (From *The New Label, There's Something In It For Everybody* http://ific.org/publications/other/tnfl.cfm.)

Choose the Best and Leave the Rest!

Tortilla Chips **Baked Tortilla Chips**

1. The number of calories in the serving size on the label of each product is:

   Tortilla Chips _____
   Baked Tortilla Chips_____

2. The serving size on the label for each product is:

   Tortilla Chips _____
   Baked Tortilla Chips_____

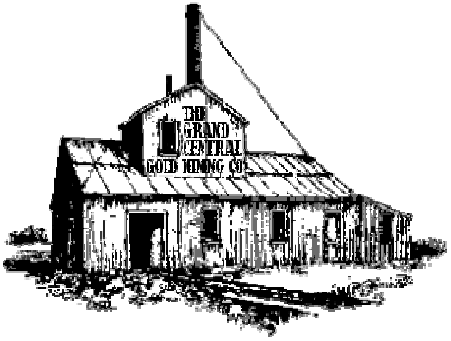
3. Which product has more calories from fat?

   Tortilla Chips _____
   Baked Tortilla Chips _____

4. The serving size on the label for salsa is _____
   If you added this to the chips, how many calories will you add?

Discuss - How do the serving sizes on the labels compare to amounts recommended in MyPyramid?

Stake Your Claim!



Food manufacturers are now required to meet specific definitions for all claims made on the label. These nutrient content claims are based on one serving of the food. For example, a calorie-free food has less than 5 calories per serving. Here is a summary of the nutrient content claims and their definitions:

Nutrient Content Claim	Definition
Calories	
Calorie free	less than 5 calories
Low calorie	40 calories or less
Reduced or fewer calories	at least 25% fewer calories*
Light or lite	one-third fewer calories or 50% less fat*
Sugar	
Sugar free	less than 0.5 gram sugars
Reduced sugar or less sugar	at least 25% less sugars*
No added sugar	no sugars added during processing or packing, including ingredients that contain sugars, such as fruit juice or dry fruit
Fat	
Fat free	less than 0.5 gram fat
Low fat	3 grams or less of fat
Reduced or less fat	at least 25% less fat*
Light	one-third fewer calories or 50% less fat*
Saturated Fat	
Saturated fat free	less than 0.5 gram saturated fat
Low saturated fat	1 gram or less saturated fat and no more than 15% of calories from saturated fat
Reduced or less saturated fat	at least 25% less saturated fat*
Cholesterol	
Cholesterol free	less than 2 milligrams cholesterol and 2 grams or less saturated fat
Low cholesterol	20 milligrams or less cholesterol and 2

	Grams of less of saturated fat
Reduced or less cholesterol	at least 25% less cholesterol* and 2 grams or less saturated fat

Sodium

Sodium free	less than 5 milligrams sodium
Very low sodium	35 milligrams or less sodium
Low sodium	140 milligrams or less sodium
Reduced or less sodium	at least 25% less sodium*
Light in sodium	50% less

Fiber

High fiber	5 grams or more
Good sources of fiber	2.5 to 4.9 grams
More or added fiber	at least 2.5 grams more*

Other Claims

High, rich in, excellent source of	20% or more of Daily Value*
Good source, contains, provides	10% to 19% of Daily Value*
More, enriched, fortified, added	10% or more of Daily Value*
Lean**	less than 10 grams fat, 4.5 grams or less saturated fat, and 95 milligrams cholesterol
Extra lean**	less than 5 grams fat, 2 grams saturated fat and 95 milligrams cholesterol

* as compared with a standard serving size of the traditional food
** on meat, poultry, seafood, and game meats

From The New Food Label, There's Something In It For Everybody, U.S. Food and Drug Administration.

PLANNING, SELECTING, STORING, PREPARING & SERVING FOOD TO MEET NUTRITIONAL NEEDS

Planning, Selecting, Storing, Preparing & Serving Food to Meet Nutritional Needs

Grade Levels: 7-12

Concept: **Food Handling and Food Safety**

Comprehensive Standard: 6.4 Evaluate factors affecting food safety, from production to consumption

Technical Standard(s): 6.4.1 Determine conditions and practices that promote safe food handling
6.4.2 Analyze safety and sanitation practices throughout the food chain
6.4.5 Review current issues about food safety and sanitation

LESSON COMPETENCIES

- Identify the causes of food borne illness
- Explore food borne illness
- Demonstrate appropriate food safety and sanitation practices in selecting, preparing and storing food

Anticipated Behavioral Outcomes

- Student practice food safety principles when purchasing, preparing, serving and storing foods at home or on the job.

Resources Needed:

- Operation Food Safety: A Middle/Junior/High School Food Safety Curriculum (2000) available from the South Dakota State University Cooperative Extension Service.
- *Science and Our Food Supply: Investigating Food Safety from Farm to Table* sponsored jointly by the *National Science Teachers Association* (www.nsta.org/288) and the *Food and Drug Administration* (www.foodsafety.gov/~fsg/teach.html) has updated materials. The curriculum contains several useful components: separate guides for middle level and high school science teachers; an interactive video, "*Dr. X and the Quest or Food Safety*"; and the comprehensive "*Food Safety A to Z Reference Guide.*" The site has links to games and other resources on the topic.

References for teachers and students:

NOTE TO TEACHER: The first 2 references listed above for this unit provide a wealth of information and activities on the topic of food safety. Obtain copies and carefully select those appropriate for your students. Consider team teaching or working with your science teacher.

Operation Food Safety: A Middle/Junior/High School Food Safety Curriculum (2000) available from the *South Dakota State University Cooperative Extension Service*. The curriculum is divided into the following units: handwashing, keeping things clean and keeping foods hot or cold. Two additional units are included for high school students: food irradiation and biotechnology.

Another free curriculum is *Science and Our Food Supply: Investigating Food Safety from Farm to Table*. The curriculum also includes a video on food safety. It can be ordered at www3.nsta.org/fdacurriculum. This curriculum guide is recommended by the USDA for use with 9-12 grade students.

NEW – The *University of Nebraska-Lincoln* at Lancaster County webpage has a variety of resources on food safety including two PowerPoint presentations, "Food Borne Illness Can Cause More Than a Stomachache" and one specifically for teens, "Cold Pizza for Breakfast: MyPyramid Food Safety for Teens and Tweens That Cook". Download at http://lancaster.unl.edu/food/mypyramid-foodsafety.htm.

NEW *Iowa State University Cooperative Extension Service* has a series of lesson plans on food safety for youth available for you at: www.extension.iastate.edu/foodsafety/Lesson/glossary.html.

NEW A series of fact sheets on safe food handling is available from USDA at www.fsis.usda.gov/Fact_Sheets/Safe_Food_Handling_Fact_Sheets/index.asp

Texas Tech University, Iowa State University and *University of Wisconsin-Stout* (September, 2001). Assessment Strategies for Family and Consumer Food and Nutrition National Standards. Funded by the USDA, Cooperative State Research, Education and Extension Service and Higher Education Challenge Grants. Available from The Curriculum Center for Family and Consumer Sciences, Texas Tech University, Box 41161, Lubbock, TX 79409-1161, Phone 806-742-3029. Request Item #4500. Cost is $20.00 + $5.00 shipping and handling.

A wealth of information and additional web links is available at the government food safety site accessible at www.FoodSafety.gov Do a site search for ideas for National Food Safety Education Month. There are several food safety experiments available at this site also.

NEW "Can Your Kitchen Pass the Food Safety Test?" (www.fda.gov/fdac/quiz/onlinequiz_js.html) is a food safety quiz from the USDA.

NEW An article on "Food Safety" (www.kidshealth.org/teen/food_fitness/nutrition/food_safety.html) is available at the KidsHealth website; it is available in a printer friendly format.

A newsletter article, *Seven Highly Effective Habits for Home Food Safety,* is available at http://lancaster.unl.edu/food/ftsep97.htm

The *Fight BAC!* Website is www.fightbac.org. This site includes a survey related to food safety, fact sheets, information on foodborne illnesses, and numerous links to other food safety sites. The "BAC-Catcher Game" can be found here. **NEW** There are curriculum activities for all grade levels and teacher's resource guides for each area as well. A PowerPoint presentation on food handling is available to download.

The *Food and Drug Administration* has links to sites with information on food safety and food safety issues at www.foodsafety.gov/~dms/fs-toc.html. Information and fact sheets on foodborne illnesses and links to additional info on food safety can be found at http://vm.cfsan.fda.gov/~mow/foodborn.html.

NEW The *Bad Bug Book* (http://vm.cfsan.fda.gov/~mow/intro.html) is a handbook that provides basic facts regarding foodborne pathogenic microorganisms and natural toxins. It brings together in one place information from the *Food & Drug Administration*, the *Centers for Disease Control & Prevention*, the *USDA Food Safety Inspection Service*, and the *National Institutes of Health*.

Food safety songs and raps can be found at http://foodsafe.ucdavis.edu Click on Food Safety music to hear the songs and to access the lyrics **NEW** – Music videos are now available for some of the raps and safety songs.

Other web sites:

USDA/*Food Safety and Inspection Service* www.fsis.usda.gov
Thermy Web page www.fsis.usda.gov/thermy
FDA/*Center for Food Safety & Applied Nutrition* www.cfsan.fda.gov/
USDA/*FDA Food borne Illness Education Information Center*
www.nal.usda.gov/fnic/foodborne/foodborn.htm
Centers for Disease Control and Prevention www.cdc.gov/foodsafety
Center for Food Safety www.centerforfoodsafety.org/
Food Safety Consortium www.foodsafety.iastate.edu/
Microbiology's Clean Hands Campaign www.washup.org/index.html.

NEW The *New York Times* has an archive of lesson plans with related news articles. Check out this lesson plan for use in this area:

It Might Come in Handy. www.nytimes.com/learning/teachers/lessons/20050927tuesday.html
Learning About Hand Washing and Communicable Disease
In this lesson, students will learn about the latest study on routine hand washing practices. They will then research some of the possible communicable diseases that can be transmitted by having lax hygiene. (September 27, 2005)

Background Information:

The United States has one of the safest food supplies in the world. However, according to the *Center for Disease Control and Prevention*, food borne illness causes an estimated 5,200 deaths, 76 million illnesses and 323,000 hospitalizations in the United States each year.

According to the *Center for Food Safety and Applied Nutrition* (2000), there are many issues that make food safety more of a concern now than ever before. These include:

- **More meals prepared away from home** – Today, nearly 50% of the money we spend on food goes toward buying foods that others prepare such as "take-out" and restaurant meals. Plus, a growing number of Americans eat meals prepared in hospitals, nursing homes, day-care centers and senior centers.
- **Food from around the globe** – Food in your local grocery store comes from all over the world, which may bring in new microorganisms. This presents a whole new set of modern food safety challenges.

- **Resistant Bacteria** – In 1950, scientists knew of 5 foodborne pathogens. In 2000, there were at least 25 foodborne pathogens, including 25 newly discovered ones.

Learning Activities:

Middle School Level

- Choose activities from the Operation Food Safety: a Middle/Junior/High School Food Safety Curriculum and/or Science and Our Food Supply: Investigating Food Safety from Farm to Table curriculum. See reference list.
- Complete one or more of the food safety experiments available at the government food safety site (www.foodsafety.gov) Click on "Kids, Teens and Educators"; Click on "Experiments for Fighting BAC! In Fourth –Eighth Grade Classrooms!" (www.fightbac.org/content/view/39/3).
- Conduct the *FBI Case: Perils at the Picnic* (www.fightbac.org/content/view/39/3) a case study where children become the detectives on the case of a foodborne illness, can found at the same curriculum site. Following this activity, ask students to write their own case studies involving improper or proper food handling strategies OR rewrite the case studies from the FBI Case example by correcting the errors made.
- To review food safety practices, make copies of the "BAC-Catcher game" (www.fightbac.org/content/view/39/3) Divide the class into teams of two, students play the game together following directions on the game handout (see reference list)

High School Level

- Choose activities from the *Operation Food Safety: A Middle/Junior/High School Food Safety Curriculum* and/or *Science and Our Food Supply: Investigating Food Safety from Farm to Table* curriculum. See reference list.
- Have students plan experiments on food safety for elementary students. Use one or more of the food safety experiments available at the government food safety site (www.foodsafety.gov) Click on "Kids, Teens and Educators"; Click on "Fight BAC! In Fourth-Eighth Classrooms!"(www.fightbac.org/content/view/37/3)
  Click on Experiments (these experiments are designed for grades 4-8.

Extended Learning Activities

- **Food Safety Posters –** Have students create clever posters for the school bathrooms and school cafeteria, family and consumer sciences classroom and faculty lounge, reminding students, faculty and staff of appropriate food safety principles. Some great ideas to assist students with this activity can be found at Website listed in the reference section for the *Seven Highly Effective Habits for Home Food Safety* (http://lancaster.unl.edu/food/ftsep97.htm) newsletter from the *Nebraska Cooperative Extension Service* in Lancaster County.

- **National Food Safety Month Campaign –** As a class or FCCLA Student Body or Community Project conduct a Food Safety Month campaign in your school and community. The month is sponsored by several organizations including the USDA – check out the theme and promotional ideas from their site at www.foodsafety.gov/%7Efsg/september.html . Additional Ideas for activities, sample press releases and PSAs and much more can be found at the government site on food safety (see reference list) National Food Safety Month is September sponsored by the *National Restaurant Association* – you can review their promotional materials at www.nraef.org/nfsem/ The site also has links to other resources on food safety issues.
- NEW **Sink Those Germs Campaign:** Work with elementary aged children in issues related to food safety and food borne illness by conducting a "Sink Those Germs" campaign. This could also be done as a part of a health fair. See the "Sink Those Germs" webpage at http://lancaster.unl.edu/food/sinkgerms.htm

Academic Connections NEW

- ✓ **Science** – The *Science and Our Food Supply: Investigating Food Safety from Farm to Table* (www3.nsta.org/fdacurriculum) curriculum featured in the reference list has a supplement for science teachers on the topic of food borne illness with experiments and applications.
- ✓ **Music** – Students can create their own food safety songs and raps for performance at a school concert or use those available at the food safety songs and raps website found at http://foodsafe.ucdavis.edu
- ✓ **Economics –** Research the cost of food poisoning to restaurants and to lost productivity at work/missing work. Check out the press release at the "Microbiology's Clean Hands Campaign" (www.washup.org/index.html for more information.

FOOD SCIENCE AND TECHNOLOGY

Biotechnology
Grade Levels: 9-12

Concept: Biotechnology

Comprehensive Standard: 6.5 Evaluate the impact of science and technology on food composition and safety, nutrition, and wellness of individuals and families

Technical Standard(s): 6.5.2 Determine how scientific and technological advancements have impacted the nutrient content, availability and safety of foods

LESSON COMPETENCIES

- Define biotechnology and functional foods
- Identify benefits of biotechnology and functional foods
- Explore concerns surrounding biotechnology and genetically engineered foods (including safety, labeling, etc.)

Anticipated Behavioral Outcomes:

- **Students research information related to food biotechnology from reliable sources.**
- **Students continue to search for information related to this emerging nutrition issue and make informed choices based on reliable information**

Resources Needed:

- Guthmiller, S., Jacobs, C. and Meyer, L. (2001). Genes by Design: An Educational Resource on Food Biotechnology for High School Students, South Dakota State University Cooperative Extension Service, South Dakota State University, Brookings, SD

References for teachers and students:

West, D.F. (2006). Nutrition and Fitness: Lifestyle Choices for Wellness. Chapter 23, Food and Fitness Trends, Goodheart-Willcox Company, Inc., Tinley Park, IL. www.goodheartwillcox.com

UPDATE A wealth of resources on the topic of biotechnology and other topics are available at the *International Food Information Council Foundation* website at www.ific.org Click on "Food and Nutrition Information". Some articles to review are*:* "Food Biotechnology: Enhancing Our Food Supply, July 2004" (www.ific.org/publications/brochures/biotechbroch.cfm) and the background paper on the topic with links to several websites and articles focusing on food biotechnology titled *Food Biotechnology: Background on Food Biotechnology* (www.ific.org/food/biotechnology/index.cfm). The links include the *American Dietetics Association's* position paper on bioengineered foods and others.

An excellent article, "The good, the bad and genetically engineered", from the January 13, 2000 issue of CNN.com which discusses both the benefits and consumer

concerns related to bioengineered foods is available at www.cnn.com/2000/HEALTH/diet.fitness/01/13/biotech.food.one.wmd/index.html

NEW – The IFIC has a downloadable PowerPoint presentation on Food Biotechnology available for download at www.ific.org/tools/presentations.cfm

NEW – The USDA webpage on "Food Biotechnology" (http://vm.cfsan.fda.gov/~lrd.biotechm.html) has numerous resources.

NEW A WebQuest on this topic, *Dining by Design: Biotechnology and Our Food, Frankenfood?* is available at www.bcpl.net/~sullivan/modules/biotech/

NEW The *MedLine Plus Medical Encyclopedia* at the *MedLinePlus* (http://medlineplus.gov/) website has a definition and brief background paper on genetically engineered foods: www.nlm.nih.gov/medlineplus/ency/article/002432.htm

NEW The *American Dietetics Association* has several articles that provide their position on the issue of food biotechnology, their position paper on the issue is titled, *Agricultural and Food Biotechnology* (www.eatright.org/cps/rde/xchg/ada/hs.xsl/) and another is titled, *Biotechnology and the Future of Food* (www.eatright.org/cps/rde/xchg/ada.hs.xsl.advocacy_3793_ENU_HTML).

NEW The *Council for Agriculture and Science Technology* (CAST) website has a list of links to educational activities and lesson plans for k-12 at www.cast-science.org/cast/src/cast_top.htm

Background Information:

Food biotechnology uses what is known about plant science and genetics to improve food and how it is produced. Genes are responsible for traits like a person's eye color or a vegetable's taste. Using modern biotechnology, scientists can move genes for valuable traits from one plant to another. This way, they can make a plant taste or look better, be more nutritious, protect it from insects, or produce more food ("Food Biotechnology: Enhancing Our Food Supply" www.ific.org/publications/brochures/biotechbroch.cfm from the *International Food Information Council Foundation*, September, 2004)

There are many benefits to consumers as a result of biotechnology; current benefits include ("Food Biotechnology: Enhancing Our Food Supply" www.ific.org/publications/brochures/biotechbroch.cfm from the *International Food Information Council Foundation*, September, 2004):

- disease resistance
- reduced pesticide use
- more nutritious composition of foods
- herbicide tolerance
- more rapid growth of crops
- improvements in taste and quality

Benefits that can be expected in the near future are:

- reducing levels of natural toxins in plants
- providing simpler and faster methods to locate pathogens, toxins and contaminants
- extending freshness

Learning Activities:

High School Level

- Introduce biotechnology with the PowerPoint presentation, Genes by Design (see resources needed) or use the overhead masters available in the curriculum to create transparencies OR use the PowerPoint presentation, "Food Biotechnology" available for download at www.ific.org/tools/presentations.cfm

- Complete the activities outlined in the Genes by Design (see resources needed). Activities include:
  - Biotechnology Timeline
  - The Cut and Past of Genetic Engineering
  - Fruit Cup DNA Extraction
  - Biotech Ice Cream
  - Debating the Pros and Cons of Biotechnology
  - Genes by Design – An Ethics Activity
- Read the article, "The good, bad and the genetically engineered" (http://archives.cnn.com/2000/HEALTH/diet.fitness/01/13/biotech.food.one.wmd.index.html) and the article, "Myths and Facts about Biotechnology" (see reference list) discuss the value of the products being developed by researchers and the concerns that consumers have related to genetically engineered foods.
- Discuss labeling of genetically bioengineered food products.

Extended Learning Activities

- **Interdisciplinary Activities –** hold an open forum or debate with agriculture students promoting the benefits of bioengineered foods and genetically modified products and family & consumer sciences students voicing consumer concerns

Academic Connections - NEW

- ✓ **Speech/Communications** – Conduct a debate on the safety issues surrounding genetically modified foods, specifically the controversy surrounding GMOs in Europe. What are the concerns of the European community? What can US producers do to address their concerns?

FOOD SCIENCE AND TECHNOLOGY

Evaluation of Nutrition Websites
Grade Levels: 9-12

Concept: Evaluation of Websites

Comprehensive Standard: 6.5 Evaluate the impact of science and technology on food composition and safety, nutrition, and wellness of individuals and families

Technical Standard(s): 6.5.1 Assess current technology to locate food and nutrition information

LESSON COMPETENCIES

- Identify criteria for evaluating web sites
- Evaluate web sites using the criteria

Anticipated Behavioral Outcomes

- Students evaluate the credibility of websites when researching nutrition and health information.
- Students use appropriate websites for sound nutrition information

Resources Needed:

- Internet access for students to evaluate websites

- Copies of handouts for all students

References for teachers and students:

Several library web pages provide criteria for evaluating Web pages. A good example is found at www.library.cornell.edu/okuref/webcrit.html.

An excellent article called "Exploring Nutrition Information on the Internet" can be accessed at http://cetulare.ucdavis.edu/news/n0398exp.htm.

A fact sheet, "Nutrition on the Internet", discusses guidelines for evaluating nutrition websites is available for downloading and printing from the *Nutrition Information Resource Center* at *Clemson University* at www.clemson.edu/nutriweb/search_results.php?keywords=internet&slink=1&sonline=1&slib=1.

"The ABCs of the Internet: Teaching Media Literacy in the Age of the Internet" by educator Kathy Schrock is available at her website. The article was updated in 2002. This site has articles, lesson plans, handouts and checklists for evaluating websites. http://school.discovery.com/schrockguide/eval.html.

An article from the *Oklahoma State University Cooperative Extension Service*, "Evaluating Nutrition Information on the Internet", is available at www.fcs.okstate.edu/cnep/links/evaluating.htm.

For more information, read *Medline Plus*: "Guide to Healthy Web Surfing" available at www.nlm.nih.gov/medlineplus/healthywebsurfing.html.

The FDA has an article entitled "Health Information On-Line" www.cfsan.fda.gov/~dms/fdonline.html to assist consumers in determining the reliability of health related information on line. It also provides a list of some credible websites for health information. This article can be directly accessed at www.cfsan.fda.gov/~dms/fdonline.html.

NEW An easy to read article, "Knowing What's What and What's Not – The 5 W's (and 1 "H") of Cyberspace" is available at the *Media Awareness* site: www.media-awareness.ca/english/resources/special_initiatives/wa_resources/wa_shared/tipsheets/5Ws_of_cyberspace.cfm. There are links to other articles also.

Trash or Treasure? How to Evaluate Internet Resources a learning module available at www.bcpl.net/~sullivan/modules/tips/eval.html.

Background Information:

The Internet is a popular source of nutrition and health information. According to a Harris Interactive poll, an estimated 100 million consumers sought health information on the Internet in the year 2000, up from 70 million in 1999 (*Wall Street Journal*, 12/29/00).

Adolescents frequently use the Internet for health and nutrition information. Researchers in New York State in a study of 412 ethnically diverse 10th graders found that 96% of these adolescents used the Internet and 49% used it to obtain health information (Borzekowski, D.L. and Rikert, V. (2001). *Adolescent cyber surfing for health information: A new resource that crosses barriers.* Archive of Pediatric Adolescent Medicine, 155, 813-17).

Many legitimate providers of reliable health and nutrition information, including the FDA, the USDA and other government agencies are using the Web to offer brochures and other in-depth information on specific topics.

While the Internet can be an excellent source of reliable nutrition and health information, there are also numerous sites that may sound "official" but are not supported by reputable organizations. Anyone can post information on the Internet and some groups intentionally choose a name that sounds credible.

The FDA suggests considering the following questions to help determine the reliability of a website:

- Who maintains the site? – Government or university run sites are among the best sources for scientifically sound information
- Is there a listing of the names and credentials of those responsible for preparing and reviewing the site?
- Does the site link to other sources of health and nutrition information? A reputable organization will not position itself as the sole source of information on any topic
- When the site was last updated. The more current the site, the more likely the information is current.
- Are informative graphics and multimedia files such as video clips available?
- Does the site charge an access fee? Many reputable sites for health and nutrition information are free, including government sites. If a fee is charged, be sure that it offers value for the money.

The Food and Nutrition Science Alliance (FANSA) made up of the *American Dietetic Association, American Society for Clinical Nutrition, American Society for Nutritional Sciences* and the *Institute of Food Technologists* have developed a list of ten "red flags" that signal bad nutrition advice. They are:

10. Recommendations that promise a quick fix.
11. Strong warnings of the dangers of a single product or regimen
12. Claims that sound to good to be true
13. Simplistic conclusions drawn from a complex study
14. Ideas based on a single study
15. Dramatic statements that are not supported by reputable scientific organizations
16. Lists of "good" and "bad" foods
17. Recommendations made to help sell a product
18. Recommendations based on studies without a peer review
19. Recommendations from studies that ignore differences among individuals or groups

Learning Activities:

Middle School Level

- Read the fact sheet, "Nutrition on the Internet" (see reference list).Discuss the following questions with students:
  - What organizations are likely to be the most accurate sources of nutrition information on the Web? How are these sites identified?
  - Which websites are typically the least reliable sources of nutrition information on the Web? How are these sites identified?
  - What are some of the things consumers should look out for?
- Discuss the criteria to consider when evaluating a nutrition/health related website. Ask students to brainstorm what consumers should look for when evaluating a site.
- Working individually, ask students to go through the process of evaluating a website at www.quick.org.uk NOTE TO TEACHER: You could go through this with the class also if so desired.
- Upon completion of this activity, ask students to develop a Top Ten List of things to watch for when evaluating the accuracy and reliability of a website.
- Students evaluate a nutrition or wellness website using the "Critical Evaluation Survey: Middle School Level" available at Kathy Schrock's website (http://school.discovery.com/schrockguide/eval.html).

High School Level

- Read the article, "Evaluating Nutrition Information on the Internet", (www.fcs.okstate.edu/cnep/links/evaluating.htm). Discuss the following questions with students:
  - What is the first step to use to identify the source of a website?
  - Why are commercially sponsored sites less likely to be reliable than government sites or those sponsored by educational institutions?
  - How might you identify if a site is providing biased information?

    - What is meant by the author's credentials? What would be some examples of information about the author that would indicate his/her reliability and authority to discuss the subject?
- Discuss the criteria to consider when evaluating a nutrition/health related website. Ask students to brainstorm what consumers should look for when evaluating a site.
- If time allows, have students complete the module on evaluating Internet resources, *Trash or Treasure? How To Evaluate Internet Resources* at www.bcpl.net/~sullivan/modules/tips/eval.html.
- Using the *Website Evaluation Form*, have students compare these two sites on diets/fad diets:

  FadDiets.com at www.faddiet.com/

  Fad Diets: What You Need to Know at http://familydoctor.org/784.xml

Web Site Evaluation Form

Name (s) _____ Website url _____

Evaluation of Web Documents	**Indicators of the Criteria Found on the Website – list specific examples that address the questions**
Authority • Who published the document? • Check the domain of the document, what institution publishes this document? • Does the publisher list their qualifications?	
Objectivity • What objectives does the page meet? • How detailed is the information? • Are any opinions or bias expressed by the author?	
Currency • When was the site produced? • When was it updated? • How up-to-date are the links?	
Coverage • Are links (if any) evaluated and do they complement the documents' theme? • Is it all images or a balance of images and text? • Is the information cited correctly?	

Adapted from the *Five Criteria for Evaluating Web Pages* from the Cornell Library found at www.library.cornell.edu/okuref/webcrit.html